Medical Life

The

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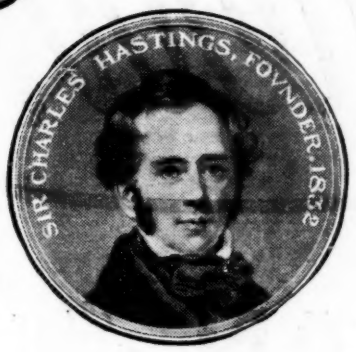


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# An Address
ON
# THE CHRONIC ABDOMEN.*

BY
ROBERT HUTCHISON, M.D., F.R.C.P.,
PHYSICIAN TO THE LONDON HOSPITAL.

Our surgical colleagues describe a condition which they speak of, in their clinical slang, as the "acute abdomen." There is, however, another condition more familiar to the physician which may be designated with equal propriety the "chronic abdomen," and if the one is, as we are told, a catastrophe, the other is certainly a conundrum.

The subject of the chronic abdomen is usually a woman, generally a spinster, or, if married, childless and belonging to what are commonly termed—rather ironically nowadays—the "comfortable" classes. To such a degree, moreover, do her abdominal troubles colour her life and personality that we may conveniently speak of her as an "abdominal woman." An abdominal man, on the other hand, is by comparison a rare bird, and when caught has a way of turning out to be a Jew—or a doctor.

## Symptoms.

The symptoms of the chronic abdomen are many, various, and ever-renewed. Some of them refer directly to the abdominal organs, others are of a more remote and general character; but, whatever they are, they are always described with great prolixity and in minute detail. Amongst those most commonly complained of are abdominal aches and pains of various sorts and in various places, but especially in the right iliac fossa. Instead of actual pain the patient may speak of a "raw feeling inside," or of "an indescribable sensation in the stomach," or of a "dragging." Constipation of greater or less degree almost always figures prominently in the list of symptoms, and flatulence is also frequent. Amongst the commoner remote symptoms one finds a feeling of general weakness or "exhaustion" (especially after an action of the bowels), "mental and physical torpor," "inability to think," "a poisoned feeling," and "neuralgic pains all over." Headaches and insomnia are also very frequent, and a great many patients complain of undue susceptibility to cold and of a constant catarrh in the throat.

## Evolution of the Chronic Abdomen.

If one inquires of a patient with a fully developed chronic abdomen how her lamentable state has been arrived at it will be found that the process of evolution is fairly constant. These sufferers are very fond of presenting anyone whom they may consult with a full record of their previous medical history and experiences, and the following are a few such records as supplied by the patients in their own words. They may be taken as typical.

### Case I.

Mrs. L., aged 47, gave the following record of her various illnesses and their treatment:

Bad fall at 2 years of age. Rheumatic fever at 13. Always bad digestion and overloaded bowel. Married at 21. After birth of first child, ulceration of rectum. Uterus never strong.

1900: Two operations for fistulae and abscesses—tumour (fibroid) discovered in uterus. Always feeling ill from auto-intoxication (enemas curing this) and rheumatism in knees (cured by inoculation).

1901: Cocaine poisoning.

1902–1909: Cures at Aix, Strathpeffer, Bath, Carlsbad, and Lausaune.

1910: Operation for "chronic appendicitis" and six tumours in uterus. Intestines never felt in place or strong after this. Same year: Pyorrhoea; inoculations.

1911: Cancer of the breast—operation.

1912: Went to Bath for "nerves." Several teeth extracted.

1913 (March): Played golf for first time and thought intestines were dragged down. Jumped out of train and ran hard (April 1st); inside never comfortable since then; pains in bladder; nerves!

May: Small fibroid discovered. Uterus half size too large. Inflammation of bladder, uterus, and general tissue; nerves terribly bad; douches, etc., in a home.

August: Contrexéville (concentrated urine and excess of uric acid). Contraction of intestines; pains in kidneys; always pain in bladder—diarrhoea. Nerves—nerves. Constipation. Passed large quantities of sand.

Now: Pains in bladder—intestines dropping. Rectum feels as if pressed on. A tight belt to push up all inside—makes nerves better. Always "intoxication"—constipation and flatulence.

### Case II.

Miss M., aged 48. Seen in 1913, complaining of constant acidity, flatulence, vomiting of green fluid, etc.

*History.*

At 5 years of age had severe jaundice and stoppage of bowels; always constipated.

At 20: Influenza and bronchitis with prolonged fever; this left "stomach trouble" which persisted.

At 32: "Dilatation of stomach," and was in bed three months.

At 33: Uterus curetted; indigestion better for a time.

At 36: Complete hysterectomy and appendicectomy. Digestion much better for over a year.

At 38: Digestion bad again—stomach lavage—much benefit for a month.

At 40: Cholecystitis and "ulcer of stomach."

At 42: Rest cure in hospital. Stomach massage. "Much benefit."

At 48: Exploratory operation. Profound visceroptosis with dilatation of stomach and pylorus. Stomach and colon fixed with catgut sutures.

One and a half years later she wrote:

". . . Am glad to say I never now (since operation) get those turns of agonizing pain in region of gall bladder which used to suggest gall stones; but there is always a sore burning spot there, sometimes pretty bad, with often slight cutting sort of pains (but only slight), and it goes when the apparent cause of corrosion of wind or food has moved.

"My old 'sore spot' (on left side under lowest rib near middle) has come back, and I am in constant distress from the burning, gnawing sensation right across below waist line. Also all over back and under shoulder blades.

"I have really been little more than an invalid for months, finding it most difficult to continue my teaching, having scarcely strength to speak. It seems to be the continued acidity and tremendous flatulence, and the sensation of weakness (I suppose) is because the heart is being almost continually choked with dilatation of stomach. About a month ago it was 'murmuring'—I do not know if it is still doing so. It feels as if a heavy weight is pressing the heart and sometimes there is neuralgic pain in its region and in left arm and I can't breathe easily. But doctor says it is not due to heart itself; that appears strong, but the effect of faintness and exhaustion is very bad sometimes, though occasionally I am able to forget it for a day or more. Of course it hinders sleep when bad. Am glad to say the fearful violent jumping—which was such a trial all the time in hospital and for eighteen months after—is almost gone and the rheumatism is better and the sudden turns of sickness less frequent. I rest all I can and do most of my work at home, so that if I find a heart turn coming on I can drop lesson and let off the tremendous flatulence in violent noisy 'spasms.' If I check them I become helpless.

"I have just started to try and take olive oil (a large teaspoon a day) and since doing so have felt easier and had no spasms, but this may be chance, but shall persevere. Bowels need 20 or 25 senna pods now to move them."

### Case III.

Miss J., aged 29. Seen in January, 1908. She had always been delicate, especially as regards digestion.

*History.*

June, 1889: Peritonitis. Abscess came away into rectum.

January, 1897: Entered on office work—health became worse.

October, 1898: Influenza (high temperature) followed by jaundice. Since have always had constipation.

1899–1900: Indigestion becoming worse.

June, 1900: Operation—two abscesses in glands on right side of abdomen, one of which had broken; considerable amount of matter; slight perforation. Since digestion has always been very troublesome.

1902–4: Digestion becoming worse and worse.

October, 1903: Six weeks' "rest cure" in bed with massage; no permanent improvement.

February to April, 1904: Being in Switzerland, six weeks' treatment in hospital there; no improvement.

May and June, 1904: Seven weeks' treatment in Zurich; no improvement.

October, 1904: Operation (gastro-enterostomy)—pylorus said to be fixed by adhesions. Digestion has since been very indifferent.

Since last date, pain and distension at intervals of from two to four weeks, lasting from periods varying from one to six or more weeks.

### Case IV.

Mrs. T., aged 41. Seen 1917, complaining of pain in epigastrium and left hypochondrium, flatulence and acidity.

In 1907 right kidney fixed.

In 1908 appendix removed.

In 1909 operation for tubal pregnancy.

In 1913 other tube and ovary removed—since then indigestion.

In 1915 rest cure.

In 1917 exploratory operation—nothing found except that the omentum was adherent to the scar in the right iliac region.

Remained well for four months, when epigastric pain returned acutely with the symptoms described above.

* Delivered before the Clinical Society of Manchester, March 8th, 1923.

CASE V.

Mrs. H., aged 53. Seen 1915 for obstinate constipation; "neuritis" in various parts of the body, swelling and tenderness of the breasts, etc.

*History.*

1886: Haemorrhoids removed.
1887: Curetting.
1888: Five cauterizations of uterus.
1898: Haemorrhoids removed again, and bowel stretched as far as they could reach. This resulted in loss of power in lower bowel and aggravated the trouble.
1905: Uterus and large fibroma removed and one ovary, in which was a cyst. The surgeon thought the fibroid growth behind the uterus was strangling the intestine, but the latter was not improved after the operation.
1910: Bismuth test and exploratory operation. Five places where tight bands had grown round the intestines—worst place left side of the colon three times round and a very thick string. It left a deformed colon, but as the place seemed elastic they did not cut it out.

This trouble continues, and since May last I have had mucous colitis. The slightest solid undigested matter causes stoppage, and there is constant *delay*. I only make matters go at all by daily injections and aperients. The poisoning is resulting in nerve pain and swellings in different parts of my body.

It will be observed that the road to chronic abdominalism is paved with operations. The usual sequence seems to be this: the patient begins by complaining of pain or discomfort in the right iliac fossa, for the relief of which the appendix is removed. For a few months she is better. (It is characteristic of the disease that almost any new treatment, and especially any operation, produces benefit *for a time*.) Soon, however, her symptoms return. This is put down to "adhesions," and another operation is performed to remedy these, with the same result as the first. Warming to his work, the surgeon undertakes bolder and yet bolder proceedings; a complete hysterectomy is probably carried out or some short-circuiting device, or the colon is fixed, or even partially removed, but still the patient is not cured of the pains, whilst the state of the nervous system has steadily worsened.

It is interesting to note at this point how medical history repeats itself. Writing in the eighties of last century on the abuse of gynaecological operations in the treatment of visceral neurosis, Sir Clifford Allbutt said of the abdominal woman of that day:

> "She is entangled in the net of the gynaecologist, who finds her uterus, like her nose, is a little on one side, or again, like that organ, is running a little, or it is as flabby as her biceps, so that the unhappy viscus is impaled upon a stem, or perched upon a prop, or is painted with carbolic acid every week in the year except during the long vacation when the gynaecologist is grouse-shooting or salmon-catching, or leading the fashion in the Upper Engadine. Her mind, thus fastened to a more or less nasty mystery, becomes new y apprehensive and physically introspective, and the morbid chains are riveted more strongly than ever. Arraign the uterus and you fix in the woman the arrow of hypochondria, it may be for life."—On Visceral Neurosis, Goulstonian Lectures, 1884.

Substitute "surgeon" for "gynaecologist" and "appendix" for "uterus" and the parallel is complete. At that time the uterine organs were the scapegoat of the abdomen; now it is the appendix—if, indeed, it is not already the teeth or the tonsils.

Meanwhile, and between the more dramatic entries and exits of the surgeon, the physician has not been idle. The patient has been thoroughly "investigated"—possibly at a "team-work" clinic; she has certainly been provided with an *x*-ray picture-book of her entire alimentary canal; her teeth have been extracted and her tonsils excised; her motions have been analysed by a biochemist and her mind by a psycho-analyst; she has had several rest cures; she has been given prolonged courses of vaccines, of intramuscular tonic injections, of intestinal antiseptics, and of endocrines; she has been fed on sour milk or minced beef or raw vegetables; she has experienced various forms of massage, has been subjected to the latest kinds of electrical current, and has had her colon repeatedly washed out at Plombières or Harrogate.

In a word, she has run the whole gamut of "modern" therapy, has submitted to every "stunt" and conformed to every fad—but is none the better. And just as she can only escape the attentions of the surgeon when—as Sir Clifford Allbutt said of the gynaecologist—he is "grouse-shooting or salmon-catching or leading the fashion in the Upper Engadine," so she is only at peace from the physician when the latter is recruiting his exhausted energies by a short holiday at an inexpensive seaside resort.

PHYSICAL AND MENTAL STATE.

On examination of a fully developed case of the chronic abdomen one will find that it has both a physical and a mental aspect, and that the latter is often the more important of the two.

Physically the patient is undernourished and sallow. To use an abominable term current at the moment, she looks "toxic." The abdomen is of visceroptotic shape and the surface criss-crossed with scars, the signs-manual of the surgeons who at one time or another have conducted exploring expeditions into the interior. The stomach is dropped and splashy and the right kidney more or less movable; there is tenderness at various points over the colon. Constipation will probably be obstinate, and the motions usually show the presence of mucus or even membranes.

The mental side of the case is more difficult to analyse. There is notable, in the first place, a general discontent, "disgruntlement," and peevishness, added to which is an intense egotism which leads the patient to regard herself and her symptoms as of the utmost importance. In a play called *The Mollusc*, which appeared some years ago, this aspect of the abdominal woman was admirably depicted, but I noticed that all my patients of this type who went to see it simply remarked, "How absolutely like Mrs. So-and-so!" None of them recognized the Mollusc as herself. Needless to say, the patient is also intensely introspective and hypochondriacal. She studies and catalogues her symptoms with minute care, and is expert in a knowledge of the action of drugs and a connoisseur of doctors and "specialists."

> "She has seen heaps of specialists," a doctor wrote to me of a typical example, "and no doubt will continue to do so. You will be amused and interested to hear that she promptly went off to another specialist after seeing you."

The operation habit has often a strong hold on her. Added to all this, and most trying of all, is an intense craving for sympathy which must be satisfied at all costs, and it is noteworthy that there is usually someone in her entourage who is always ready to supply the need. Sometimes an unmarried daughter is the victim; sometimes it is an over-devoted husband. One should not, however, commiserate him too much, for, like the husband in *Bunty*, he is often a "weelin' victim" and always ready to kick his chains.

Her incessant demand for sympathy and understanding makes the abdominal woman a veritable vampire, sucking the vitality of all who come near her. Half an hour with her reduces her doctor to the consistence of "a piece of chewed string," and is more exhausting to him than all the rest of his dai'ly visits put together, for she is always discovering fresh symptoms, will not admit any improvement in her condition, and has an objection to everything that is proposed. Crabbe must have had her in mind when he wrote of the patients—

> "Who with sad prayers the weary doctor tease
> To name the nameless ever new disease."

"My *bête noire*, Miss ——, is coming to see you soon," a medical friend feelingly wrote to me of an extreme example. Fortunately, however, she never sticks to one doctor long, but is always rushing off after fresh advice, and her nurses can always be changed at short intervals; if they were not, they would go mad.

THE NATURE OF CHRONIC ABDOMINALISM.

When one comes, then, to analyse a case of the chronic abdomen, it is found to consist on the physical side of a state of visceroptosis along, usually, with a greater or less degree of muco-membranous colitis, and, on the mental side, of that morbid psychological state which was sketched above. But now comes the conundrum. How can the physical basis produce the multiform symptoms of which the patient complains, and what is its relation to the mental side of the picture?

It is common knowledge, of course, that many women have pronounced visceroptosis without being much affected by it either physically or mentally. Why, then, do these particular patients appear to suffer so much? Again, what part does muco-membranous colitis play? It is true that one rarely sees a sufferer from that disease who does not exhibit in greater or less degree the mental characteristics of chronic abdominalism, but what is the relation of the one to the other? Does the colitis affect the mind, or is it the other way round? I need not remind you, of course, that there is a school of thought which would attribute all the remote

physical symptoms of chronic abdominalism, and presumably the mental symptoms also, to "auto-intoxication." This doctrine has been so much discussed in recent years that I do not propose to weary you with a further consideration of it; but although there may be an element of self-poisoning in some of these cases, I feel bound to express the opinion that it will not account for all the symptoms. Nor have I any new theory to offer. There remains, when all is said and done, a good deal of mystery about the chronic abdomen, and it needs further study—especially, perhaps, from the psychological side and from the standpoint of the relation of the vegetative nervous system to the emotions.

### TREATMENT.

In the treatment of the chronic abdomen the most important thing is to catch the patient early. If she has once set her feet on the slippery slope which leads to successive operations she is undone. A timely "fattening cure," followed by the provision of an efficient abdominal support, regulation of the bowels by the mildest laxative, supplemented if necessary by simple enemas, an abundant but unirritating diet, soothing of the nervous system by bromides—these are the physical measures. On the mental side the patient should be encouraged to take up some definite occupation which will provide her with an interest outside herself.

In an incipient case such means may suffice, but if one has to do with a confirmed example of the disorder one's task is much more difficult. At the outset the question of operation is sure to arise. The patient will probably have already had her appendix removed at least, and if any further operation is decided upon it is best, I believe, to make it of a purely exploratory character. The incision should be large enough to permit of a thorough investigation of all the viscera—for even the chronic abdomen may be the seat of organic disease—any bands or kinks may be dealt with, but short-circuits are to be avoided at all costs, and organs should not be removed unless they are demonstrably diseased. Whether fixation of the colon is worth while I do not know, as I have not seen a sufficient number of cases in which at least two years have elapsed since the operation. Immediate benefit is no criterion of permanent relief, for, as I have already pointed out, these patients are always improved for a time by a new treatment. Colectomy of any degree is a grave proceeding not to be undertaken lightly. In any case a thorough exploration may at least satisfy the patient's mind as to the absence of serious organic disease, and so pave the way for a healthier mental attitude in future.

Apart from operation, the physical treatment will proceed on the same lines as in an early case, but success is much more difficult to attain.

There remains the mental side to be dealt with. What is to be desired here is something which will dislocate the patient's mind from its perpetual revolution round her umbilicus and set it open to wider horizons. The war cured some and loss of fortune and bereavement have cured others; but these are drastic remedies which it is not within our power to prescribe. Suffragettism undoubtedly was the salvation of some abdominal women, but the suffragettes are now experiencing the tragedy of fulfilled ambition, and probably many of them have relapsed. Marriage, and the advent of a child—even an adopted one—are often potent remedies, and the fancy religions—Christian Science, Theosophy, Spiritualism, and so forth—may be ways of escape. One of my patients, an ex-nurse (and ex-nurses furnish the most malignant types of the chronic abdomen), once consulted a palmist, who after looking at her hand said, "If I were your husband I would take a stick to you!" The advice was sound, and might often, perhaps, be effective. Whether the methods of M. Coué will help these patients remains to be seen. The difficulty is that many of them, despite their protestations to the contrary, really lack the will to be well, and their daily litany is: "Day by day, and in every way, I get worse and worse."

I confess, therefore, to some feeling of despair as regards the treatment of the more advanced cases of the chronic abdomen, and on the whole I am inclined to think that the less one has to do with them the better both for one's peace of mind and one's professional reputation. Yet, unfortunately, these cases are likely to increase in the future, for as civilization gets more complex, as fewer women in the upper classes marry, or, being married, have fewer and fewer children, all the factors which favour the development of chronic abdominalism will be more intense. It is a bleak prospect.

# Hunterian Lectures
ON
# MAN'S POSTURE: ITS EVOLUTION AND DISORDERS.

GIVEN AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND
BY
PROFESSOR SIR ARTHUR KEITH, F.R.C.S., F.R.S.,
CONSERVATOR OF THE MUSEUM.

[*Abstracts.*]

## LECTURE VI.—THE EVOLUTION OF THE HUMAN FOOT.

WHEN dealing with the evolutionary history of the spine, thorax, abdomen, and pelvic floor we found that the human condition was the last of a series of steps which are seen to begin in the small orthograde ape, the gibbon. The missing evolutionary stages are not those which bridge the hiatus between the great anthropoids and man, but those which fill the gap between the orthograde gibbon and the older pronograde condition seen in monkeys. When, however, we came to consider the structure of man's groin and, to lesser extent, his pelvic floor, we found that the evolutionary gap was seen to lie between the human and the anthropoid stages. This is the case as regards all parts of man's lower extremities; more particularly is it true of his foot. Even in the gorilla, the anthropoid which shows the nearest approach to man in the use of its lower extremities for support of the body, the great toe is free and used as a grasping thumb.

The central evolutionary problem of the human foot is: How did the thumb-like great toe lose its independent nature and become merged in the metatarsal series? By what process did the free mobile great toe of the prehensile primate foot come to form the principal part of the rigid plantar arch of man? The transformation is all the more remarkable when we remember that a prehensile hallux was present at the first dawn of the primate type of animal, and has retained this form throughout the long history of the order, with the exception of that aberrant being, man.* In him the hallux has reverted to a primitive position in the metatarsal series.

### *Has the Foot of Man been Evolved from one which was Prehensile?*

At the very outset this question must be asked and answered: What evidence is there that the human foot has passed through a prehensile stage? The human foot has the same structural composition as the ape's foot—the same bones, the same muscles, the same ligaments; it is only their arrangement and form that have become modified in the human foot. If in the higher primates we compare bone after bone, muscle after muscle, ligament after ligament, we find in every case a series which leads from the type seen in the pure prehensile foot of monkeys to the stage reached in the human foot. Take, for example, the three contrahentes muscles to be seen in the sole of the monkey's foot; they serve to approximate the heads of the metatarsal bones. In the sole of the human foot they are represented by mere fibrous strands; the story of their degeneration can be read in the feet of the orthograde apes. They are still present in the gibbon; they are in the retrograde stage in the chimpanzee, they are almost as much reduced in the foot of the orang and gorilla as in that of man. The interosseous muscles of the monkey's foot do not lie between the metatarsal bones, as in the human foot, but on their deep or plantar aspect. In the gorilla and orang they are set as in man; in the gibbon they occupy an intermediate position. Yet as the interosseous muscles appear in the foot of the human embryo they are set and arranged as in pronograde apes. In the course of development they take up their intermetatarsal position. We shall cite, when dealing with the structures which maintain the arch of the human foot, other evolutionary links which make us certain that the human foot is but the culminating stage in a series foreshadowed by anthropoid feet.

### *Flexion Lines of the Sole.*

No more convincing evidence of the prehensile history of the human foot can be cited than the flexion lines to be seen

* See Professor Wood Jones's *Arboreal Man*, 1916.

on the sole of the baby's foot. Line for line they agree in their relative position and form to the flexion folds to be seen on the sole of the gorilla's foot. The sole of the newly born child has the inverted anthropoid position—an adaptation for grasping and climbing. The articular face on the internal cuneiform, on which the base of the hallux moves, is set obliquely in the foot of the human infant, thus recalling the original prehensile nature of the great toe. The astragalus of a baby has, in its general shape, and in the form of its articular surfaces, many points in common with the astragalus of the great anthropoids. Seeing how different is the use to which the great toe is put in man and apes it is wonderful that the muscles which serve the one can be made to answer the needs of the other. Only one hallucial muscle has been radically transformed in man—the short flexor of the great toe has had a second belly added to it. The other muscles have undergone a mere change in size and attachment.

*The Shaping of the Human Foot.*

When we take all these points into consideration there can be no hesitation in believing that the human foot has been evolved from one which was prehensile, and that stages leading on to the human form are to be seen in the feet of anthropoid apes. And yet in the development of the foot of the human embryo a prehensile stage—an ape-like foot—is at no time to be seen. If it were true that the human embryo, at every point of its development, recalled, or passed through, an ancestral phase, then we should expect to see a simian stage in the developing human foot. But the law of recapitulation is only partly true; development is a double process—it is recapitulatory, but it is also anticipatory. We see the two processes proceeding side by side and masking each other; atavistic features appear in the developing foot side by side with the new ones. The human foot was never shaped by any effort made by the growing or grown anthropoid ape, as Lamarck supposed, but arose for the first time in the embryonic foot—under the influence of the growth mechanism which controls the development of that organ. Hence it is that, up to a stage corresponding to the point reached by a human embryo at the end of the second month of development, the foot and toes of man and ape are much alike—the toes radiate forwards from the tarsus and all are united in a common web. At this stage the arrangement of digits is really that seen in five-toed mammals; it is an ancient form. Even at this stage the great toe of man is predominant in thickness although not in length. Then at the stage where the webbing disappears from the digits of the foetal ape and the great toe assumes its separate status, the foot of man goes on retaining the great toe in the primitive adducted embryonic position. The adducted position of man's great toe came about by arresting development at an early point of digital differentiation. It will be found to be true of nearly all the structural features which are distinctive of man's body that they make their first appearance in the embryonic or foetal stages of apes; subsequently they blossom to their full in man's body. Such foetal structures are not, as so often thought, recapitulations of ancestral phases; they are new evolutionary creations.

*Functions of the Foot.*

Such evolutionary studies as I am now laying before you are of interest and of use to medical men only if they throw light on how the human foot came by its functions as well as by its form. How did the supple prehensile simian foot become modified to serve as a lever—the "stepping-off" lever—so necessary for man's progression? In cases of "flat-foot" the lever becomes broken, and we know well how crippling this disaster can be. If we examine the foot of a pronograde monkey, or even of the orthograde gibbon, we see that it is in reality a Y-shaped prehensile organ. The stalk of the Y is represented by a short tarsus; the limbs of the Y represent the opposed digital and hallucial elements of the grasping organ. The hallucial limb is directly articulated on the tarsus, for its metacarpal bone serves as a phalanx in the grasping foot. In the digital limb of the grasping foot the four metatarsal bones are fixed with some degree of rigidity to the tarsus; the mobile toes articulate on the metatarsal segment of the sole. Thus, taking no notice of the great toe in the meantime, we see that the primate foot is made up of three functional segments—tarsal, metatarsal, and digital—each serving its own peculiar use in the prehensile foot. Now if we note what has happened to these three elements in the feet of the higher primates, as set out in the following table, we see that,

*Table Showing the Proportion formed by each Element of the Foot in Man and Allied Primates.*

| | Proportion of Tarsus. | Proportion of Metatarsus. | Proportion of Phalanges. |
|---|---|---|---|
| Semnopithecus (monkey) | 28 per cent. | 33 per cent. | 39 per cent. |
| Gibbon ... ... ... | 28 ,, | 30 ,, | 42 ,, |
| Orang ... ... ... ... | 27 ,, | 33 ,, | 40 ,, |
| Chimpanzee ... ... | 32 ,, | 33 ,, | 35 ,, |
| Gorilla ... ... ... | 39 ,, | 28 ,, | 33 ,, |
| Human infant ... ... | 46 ,, | 31 ,, | 23 ,, |
| Man (adult) ... ... ... | 52 ,, | 30 ,, | 18 ,, |

in all, the proportionate length of the metatarsal element remains nearly the same; on the other hand, as the digital element shortens, the tarsal element increases in length and strength. If we measure the length of a monkey's foot, from the heel to the tip of the longest toe—which is the middle digit in old-world monkeys—we note that while the tarsal element makes up only about 28 per cent. of the total length the digital or phalangeal element makes up 39 or 40 per cent. At the other end of the series we find the foot of man, in whom the tarsal element makes up more than 50 per cent. of the length while the digital element provides less than 20 per cent. of the length. Between these extremes lie a series of intermediate forms. In the proportion of the three elements the foot of the gibbon differs but slightly from those of the monkey; the evolution of the orthograde posture did not affect the proportion of the elements in the foot. With the evolution of the heavy bodies of great anthropoids the supporting or tarsal element underwent a great relative growth. This is not so evident in the orang because the foot has become specialized in a way opposite to that which occurred in the human stock; in the orang the hallucial element of the foot atrophied while the digital element underwent a great development. In man the hallucial element became predominant, the digital greatly reduced. Were it not for the form represented by the foot of the gorilla there would be a very decided break in the series leading from the anthropoid to the human foot. The proportions seen in the infant's foot helps to bridge the gap between the gorilline and adult human types. Thus we see that in shaping the feet of the higher primates Nature has gained her ends by increasing the tarsal or supporting element and diminishing the digital or grasping element. The human foot represents the climax of an evolutionary movement which began long ago in an anthropoid ancestry.

*History of the Great Toe.*

Turning now to trace the evolutionary history of the great toe or hallucial element, we note that in pronograde monkeys the length of the great toe is about 55 per cent. of the length of the middle or longest toe. In this measurement is included the length of the metatarsal bones as well as of the phalanges. Measured by the same standard, the great toe of the gibbon is 67 per cent., that of the gorilla and of the chimpanzee 68 per cent., while in man the great toe is usually equal to or greater than the length of either the second or third toe. The great toe of man has reached the 100 per cent. standard, but it must be remembered that this result has been attained as much by the reduction of the phalangeal elements of the four outer toes as by a real growth on the part of the constituent bones of the hallux. Nevertheless, the peculiar features of the human foot have been worked out by an overgrowth of the hallucial element as well as by the incorporation of this element in the metacarpal series.

*Evolution of the Plantar Arch.*

We come now to the most difficult part of our inquiry: How did man come by that peculiar feature of his foot—the longitudinal plantar arch? When the arch collapses, as in cases of flat-foot, the chief breakdown occurs at the mid-tarsal joint—particularly between the head of the astragalus and the rest of the tarsus. Now in pronograde monkeys the mid-tarsal is a flexible joint; when a monkey is "stepping off" from a branch it will be noticed that, while the heel is being raised, the hallucial and digital limbs of the foot still maintain their grasp; the heel is raised at the mid-tarsal joint. Although the orthograde gibbon retains the flexibility

of foot seen in pronograde apes, one no longer sees a pure flexion movement taking place at the mid-tarsal joint. In the great anthropoids the tarsus has gained in strength and rigidity, yet movements of inversion and eversion still take place at the mid-tarsal joint with the greatest freedom. The tarsus of the great anthropoid serves the purpose of a lever, but there is no plantar arch. Even in the gorilla, the least arboreal of the great anthropoids, there is no arch; the sole of the foot is applied flatly to the branch which supports the weight of the animal. All the muscles of the sole and digits are concerned in grasping. The foot thus fixed to the branch becomes a base from which the muscles of the leg act in supporting and balancing the weight of the animal. Every muscle which has a tendon ending in the foot becomes a mover and balancer of the leg. It is only when we note the manner in which the chimpanzee, and particularly the gorilla, applies its feet when walking on the ground that we realize the possibility of the grasping anthropoid foot becoming converted through a series of serviceable intermediate stages into a supporting plantigrade one, such as we see in man. We obtain further confirmation of the possibility by observing the manner in which an infant learns to use its feet in walking. The anthropoid traits, very recognizable in the feet of Neanderthal man, lend countenance to the same line of reasoning. The gorilla, when on the ground, rests the weight of its body on the outer margin of the inverted foot. The foot is maintained in the inverted position by the anterior and posterior tibial muscles. The inverted margin of the tarsus is the beginning of a plantar arch; it is maintained in position by the action of the tibial muscles, which now assume a postural function. They have become postural muscles and work against their opponents—the long and short peroneal muscles—which also have now assumed a postural rôle. Between the invertors and evertors the foot is steadied, and the in-turned position of the sole maintained. The feet, being no longer grasping structures, become props on which the body has to be balanced.

In the application of the sole of the human foot to the ground in walking we can recognize three phases: first the heel comes in contact; then the weight of the body is brought to rest on the outer margin of the foot, and on the transverse pad of the sole; lastly, in stepping off, the weight of the body is thrown on the front part of the foot, particularly on the phalangeal elements of the great toe. In the gorilla there is the same sequence of events: the heel is applied first; the weight of the body comes to rest on the outer margin of the inverted foot; lastly, in stepping off, the toes, particularly the abducted great toe, are applied and used as a fulcrum. Now the inversion of the foot has raised the inner margin of the tarsus on which the great toe of the gorilla is hinged. We have only to suppose the incorporation of the metatarsal element of the great toe as a member of the metatarsal series of an inverted anthropoid foot to obtain the arrangement of parts which go to make up the longitudinal plantar arch of the human foot. The incorporation of the first metatarsal takes place, as already mentioned, in early embryonic life. The evolution of the plantar arch was dependent on an assumption by the tibial muscles of a postural supporting action.

We have spoken as if the simian great toe had been adducted to the other metatarsals during the evolution of the human plantigrade foot. There is evidence that the approximation was brought about as much by the bending inwards of the four outer metatarsals as by a bending outwards of the great toe. In the anthropoid foot the outer metatarsals continue the axis of the os calcis; the great toe continues in the main axis of the astragalus. In the human foot the great toe still maintains the direction of the astragalus but the outer metatarsals are turned inwards from the axis of the os calcis.

From these facts we infer that in the evolution of the human foot all the elements of the great toe became hypertrophied and that the hallux soon became functionally important in the act of stepping off. The four outer toes underwent a retrogression and their metatarsals were approximated to the hallux as much as the hallux to them. Much depended on the hypertrophy of all the elements of the great toe and on the retrogression of the phalangeal elements of the four outer digits. The growth of the tarsus, particularly of the heel, and the retrogression of the outer toes have already given a semi-humanoid character to the foot of the gorilla.

C

*Evolution of the Supporting Structures of the Sole of the Foot.*

The tendon of the plantaris muscle plies over a synovial groove on the heel of pronograde apes and ends in the plantar fascia. In the orthograde gibbon the heel has grown through the tendon; the plantar aponeurosis, being cut off, now forms a supporting structure for the sole. This is the case in all orthograde primates; in all of them the plantaris has become a vestigial muscle; it is more frequently present in the calf of man than in the leg of any kind of anthropoid, which probably is due to the overgrowth which has overtaken all the muscles of man's calf.

In the cutting off of the plantar aponeurosis and its fixation to the heel we see the first step in the evolution of the set of structures which help to support the sole of the foot. Another evolutionary change is seen in the short flexor muscles of the toes. In man all four bellies of this muscle rise from the heel and end in the toes; they serve to support the arch. In the prehensile, flexible foot of a monkey only the belly to the second toe arises from the heel; the other three have their origin from the movable tendons of the long flexors of the toes. In the great anthropoids the belly of the muscle to the third toe has also shifted to the heel; in a certain proportion of orangs and gorillas the muscle to the fourth toe has also gained an attachment to the heel; in man only has the belly to the fifth toe been shifted. Here we see further adaptations for plantar support. The action of the short flexor muscles has been changed by a migration of their point of origin.

Further changes of the same kind are seen in the strengthening of the quadratus plantae of the human foot; in only man is found the inner head of this muscle. Mention has already been made of the migration of the interosseus muscles to a position between the metatarsal bones. Such a position gives them power to brace together the metatarsal elements of the foot. In the human foot the internal ligaments of the tarsus and of the tibia and tarsus have been strengthened.

*Flat-foot.*

The evolution of the human from a grasping foot was necessarily attended by the creation of a neuro-muscular mechanism for maintaining the plantar arch. The muscles which became adapted for this new function were those used for inverting, everting, and fixing the tarsal elements of the prehensile simian foot. Slight modifications in the tendinous insertions of the anterior and posterior tibial muscles made them efficient supporters of the instep; the evertors, the long and short peroneal, required no alteration to serve their new purpose. A new evertor—the peroneus tertius—came into being in the human foot; it arose by the separation of the outer part of the long extensor of the toes. Every stage of its evolution is represented in the variations which occur profusely in the leg of modern man. The grasping muscles of the sole became converted into postural supporters of the arch. Flat-foot occurs when the postural function of the supporting muscles breaks down. Why the postural muscular mechanisms of the human body are so apt to become disordered we do not know. When that of the plantar arch breaks down the human foot reverts to a condition comparable to that seen in the grasping arboreal foot of anthropoids. The mid-tarsal joint becomes again freely movable; the metatarsal elements of the foot become turned outwards or everted—just as they are in the foot of an anthropoid when seizing a branch. Flat-foot is a reversion also in this sense: it results from the loss of a recently evolved function—one which man has attained late in his history.

*Hallux Valgus.*

Of all the primates, only man suffers from disorder and disease of the condylar joint of the great toe—the joint between the head of the first metatarsal and the base of the proximal phalanx. A knowledge of man's history helps us to understand why he has become the subject of this crippling deformity. Even in the gorilla, the most terrestrial of man's next-of-kin, the great toe is constituted so as to serve as a grasping thumb. Its metatarsal bone is freely movable, having the tendons of two muscles inserted to its base—the tibialis anticus and peroneus longus. Three short but stout muscles—the abductor, flexor brevis, and adductor obliquus—bend the proximal phalanx and thus assist in securing the arboreal foot grasp. The terminal phalanx is bent by the long flexor. Now in man all of these muscles have been retained, but their actions have been changed. The metatarsal bone has become stabilized

as part of the arched lever of the foot; the two muscles attached to its base—the peroneus longus and tibialis anticus—have become postural in function, assisting in maintaining the arch of the foot. The two terminal phalanges, in place of being the movable parts of a grasping digit, have become the chief part of the fulcrum or base from which the human foot steps off; with each step the weight and force of the body falls on this joint of the great toe. Hence, with the evolution of the human foot the muscles which act on the phalanges, particularly the short muscles acting on the basal phalanx, had to take on a new rôle—they had to adjust and maintain the position of the hallucial phalanges at every phase of the "step off." Hallux valgus results from a breakdown of the neuro-muscular machinery which guards the condylar joint of the great toe. No doubt ill fitting boots contribute to this breakdown, but when it is remembered that the action of muscles which cross a joint are largely regulated by stimuli which arise within a joint, we see good reason for suspecting that the initial factor in the cause of hallux valgus arises within the joint itself. We do know that people of certain constitutions are particularly prone to disorders in the ball joint of the great toe.

*The Normal Position of the Great Toe.*

One last point as regards the "normal" position which the human great toe should hold to the rest of the foot. From a study of the footprints of native and unshod races, and also of English infants and children, I realize that a healthy and unblemished great toe may vary in position between two extremes. If on a footprint a line be drawn along the inner border so as to touch the impresses of the margin of the heel and of the ball of the great toe, what may be called an "inner directional" line is obtained. If a similar line be drawn along the outer border of the imprint—from heel to the outer margin of the foot-pad—an "outer directional line" is obtained. In healthy normal children and natives the great toe may be parallel to either outer or inner line, or may lie at any angle between these lines. The inner direction is the more simian, but which is the more liable to become the site of hallux valgus I have no evidence.

## A CASE OF HYPERPIESIA.

REPORTED BY

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*With Commentary by*

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FREQUENT as this malady is amongst the well-to-do classes of life, it is—so far as my experience goes (C. A.)—scarce in hospital practice. Moreover, by the duration of the malady, and its consistency for some long period with good health, the story is often broken or incomplete. When the patient has to seek advice, he may pass from one physician to another; in private practice, for various reasons, necropsies are rarely obtained, and when obtained may be very perfunctory. Consequently, until Dr. Batty Shaw made, in his recent book, a solid and valuable contribution to its pathology, our stock of fully observed instances of hyperpiesia was very scanty.

A patient, a man aged about 60, died during last Lent term in the Addenbrooke's Hospital with arterio-sclerosis, a very large heart, and a systolic pressure of 210 mm. But little was known of his history, and before death there had not been much time for an adequate series of biochemical and other observations. The necropsy was made by Dr. J. F. Gaskell, who reported that the kidneys (of which I made a naked eye inspection) were quite normal. Death was by cardiac defeat and its effects. The case was clearly proved to be one of hyperpiesia.

In this default of instances it seems well therefore to add to our store of evidence by publishing the following notes by Dr. Vey of a case of this kind at University College Hospital. Dr. Vey, then house-physician, watched the patient very closely and made ample clinical notes during the last fifteen months of his life, including the laboratory reports and the *post-mortem* findings. Dr. Vey described the case in his thesis for M.B. at Cambridge; and, with his permission, I have made (I hope not too drastic) an abridgement of his notes. I think that I have not omitted any relevant abnormal feature or reaction.

*Report of Case by* Dr. D. C. L. VEY.

A male patient, aged 61, a clerk, was admitted into University College Hospital, under Sir John Rose Bradford (and later under Dr. Sidney Martin), five times in fifteen months. The first occasion was on September 3rd, 1921. He had complained of dyspnoea on ascents for ten months, and of swelling of feet and abdomen for nine months. Previous personal history good; no bad habits.

On admission, respiratory rate 32, much general oedema; liver full; heart large and heaving; pulse regular, large in volume, rate 50 to 72. Systolic blood pressure 200. Urine very scanty; specific gravity high; albumin abundant; a few epithelial cells and leucocytes; no casts. Under treatment, which included digitalis, he improved greatly.

Second admission, December 28th, 1921; symptoms as before, but drowsiness also. Bled to 24 oz. Heart still larger, beat in seventh left space in mid-axillary line. Second aortic sound much accentuated. Blood urea, on two occasions, 20 and 37. Blood pressure (systolic) 210. Improvement as before. Blood pressure on discharge 180.

On the third and fourth admissions similar reports and results. Fifth admission, November 8th, 1922: oedema and dyspnoea worse than ever; but pulse regular, full and hard, rate 80. Radials thick; blood pressure 190. Heart as before. No murmurs in any area. Urine in first twenty-four hours 34 oz., and about the same for next seven days; specific gravity 1018; some albumin. Headache and drowsiness. Respiration at times tidal. No twitchings. Multiple incisions of legs answered well, relieving symptoms; and blood pressure fell a little to 180-200. Urine now generally reached to 70 oz., and on each of two days to 120. Blood urea on admission was 48 mg. per 100 c.cm.; a fortnight later it had fallen to 24. During a period of three weeks the daily percentage and the totals of urea in the urine ranged between 1.5 and 2.35; the total amount averaged about 40 grams. Chlorides averaged 3 grams daily. Two urea concentration tests were made on November 15th and December 5th. On the former date the concentration was 1.6 per cent. at the end of the first hour (vol. 160 c.cm.), and 1.7 per cent. (vol. 140 c.cm.) at the end of the second hour. On the second date 2.05 per cent. (vol. 224 c.cm.) was noted at the end of the first hour, and 2 per cent. at the end of the second hour.* There never had been any pyrexia, and the patient, as before, was doing well, when he had a sudden rigor; he was distressed and speechless; the temperature rose to 104.8°, he became unconscious, and died. The cause of this event was not apparent at the necropsy. A few days before death recent small haemorrhages had been reported in the right fundus oculi, and a single larger one in the left.

The diagnosis during life was very difficult. "Chronic parenchymatous nephritis" was suspected, though the extreme cardiovascular symptoms seemed hardly to confirm the suspicion. Dr. Goodhart in the *post-mortem* room, before the necropsy, expressed the opinion that "the kidneys would be found normal, or nearly so."

The relevant features of the necropsy were briefly as follows: Heart, 39 oz.; left ventricle much hypertrophied and dilated, and right ventricle also. Aorta, traces of old syphilis; many patches of atheroma, calcareous and ulcerative. Pulmonary artery and branches dilated, stiff on section, and showed atheromatous patches. Spleen large and fibrotic, with internal thickening of the arterioles, and fat droplets. Liver nutmeg, and some arteriolar thickening. Kidneys each 9 oz.; except that the renal artery was stiff, no abnormal appearance to the eye. Brain normal to the eye. Microscopically the myocardium revealed well marked interstitial fibrosis; no fatty degeneration.

From the kidneys frozen sections were taken and stained with haematoxylin and Scharlach R.; and paraffin sections were stained with haematoxylin and eosin. The larger arteries showed a moderate degree of internal thickening; this was more pronounced in the smaller, especially the interlobular and afferent; but not to obliteration. Fat droplets in the smaller vessels. Glomeruli "surprisingly little affected; a very few showed some atrophic change with fat droplets, but nearly all were remarkably healthy." "The tubules were practically free from change." Interstitial fibrosis was minimal.

Such in epitome is Dr. Vey's record of a case of hyperpiesia, in its later phases thoroughly investigated. That the patient, as was the case with the one mentioned in Addenbrooke's Hospital, died with more or less of uraemic symptoms is true; but it is now fully recognized that such symptoms may, and often do, occur in the "cardiac kidney," but in case of the patient's amendment pass off entirely. That the syndrome is essentially incidental in these cases and, in periods of amendment, transitory, has been very fully illustrated by certain French physicians; but as I am writing away from home I cannot give references. Dr. Vey reported drowsiness on the second, third, and fourth admissions; but during the temporary recoveries the uraemia passed off.

Little by little, then, our knowledge of hyperpiesia in its later phases is increasing, yet its causes still lie in obscurity, and, except in early phases, we are gaining but little power of relief. To some amendment we can attain, but in the later issues, and unfortunately these are too often the first symptoms

* The amounts of protein and salt taken in the diet were not calculated, but the diet was a very light one.

to drive the patient to seek medical advice, cure is out of the question. Venesections do some temporary good—and are useful at critical moments—but frequent repetitions hardly prove acceptable or satisfactory. Calomel still holds its ground as perhaps the best single drug. The high-frequency current (diathermy) is the best of the "symptomatic" remedies, but too often I fail to persuade the *x*-ray specialists to take much interest in invisible results. In the long run intermittent courses of calomel, diet, regulated life, diversions of mind, and an annual visit to one or other of certain spas seem at present to be all we can do. C. A.

## THE CUTANEOUS TUBERCULIN TEST (PIRQUET):

### WITH REFERENCE TO ITS FAILURE IN ADVANCED TUBERCULOUS DISEASE IN CHILDHOOD.

BY

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THE cutaneous tuberculin test (Pirquet) is now accepted as a delicate indicator of tuberculous infection in childhood—so delicate, indeed, as often to reveal a latent focus, buried out of reach of clinical methods of detection, and producing no effect upon sound health. On the other hand, it is common doctrine that the test fails in a considerable number of cases of advanced and widespread tuberculous disease in childhood. It is enough to say that these failures of the test are admitted by Pirquet himself,[1] by Calmette,[2] and are confirmed by many published investigations, of which those of McLean and Jeidell,[3] and Dunn and Cohen,[4] may be quoted as representative and recent.

It would seem rash to question such weighty scientific teaching and general clinical experience, and in a previous communication to the BRITISH MEDICAL JOURNAL (1909)[5] I have myself subscribed to the frequent failure of the test in advanced tuberculous disease. But for some time I have used a more careful technique in the performance and reading of the Pirquet test, and with this I have not failed to obtain a positive reaction in any case of severe tuberculous disease proved to be such by the discovery of the bacillus or by *post-mortem* examination. It seems worth while, therefore, to describe this technique and to give some examples of its results.

### TECHNIQUE OF THE PIRQUET TEST.

There is great variation in the directions given for the performance and reading of the test. Undiluted tuberculin is now generally advised, but a dilution is permitted by Calmette and others. For the preparation of the skin, multiple scratches or a single scratch, or the use of a dental burr or small chisel (Pirquet), are variously recommended. The test is advised to be read as positive or negative in twenty-four hours, or at latest forty-eight hours, though it is admitted that late reactions may occur after this time. The control test is made by a similar lesion on the dry skin and the application of a drop of normal saline. The technique which I now use, and which is, I think, more thorough and less free from error, is as follows:

1. *Undiluted Old Tuberculin (O.T. Koch) must be used.*—In my first series of cases, published in the JOURNAL in 1909, a 25 per cent. dilution of old tuberculin was used, and it is very probable that some of the failures there recorded were due to this. Calmette himself still advises such a dilution. In another paper[6] I have published photographs showing the simultaneous use of undiluted tuberculin and 25 per cent. dilution in two cases, and the diminution of the test in the one case and its failure in the other with the diluted tuberculin. It is necessary, therefore, to emphasize the importance of using undiluted old tuberculin for the cutaneous test.

2. *Preparation of an Area of Skin to Ensure Contact of the Tuberculin with Vascular Tissue.*—The method of the single scratch, or of a number of scratches, is too haphazard. Pirquet's method of placing a drop of tuberculin on the skin and of making a lesion by rotating through it a small drill or borer, may also fail to reach and expose the vascular cutis. I always use the following method: A small circular area of skin on the front of the forearm is chafed with the sharp point of a darning-needle until the epidermis is removed and the pink cutis vera is exposed. Care is taken to avoid bleeding. The eye of the needle is now charged with undiluted old tuberculin, and pressed into the prepared vascular surface with a rotary motion. A small bruised pit is thus formed from which the tuberculin is rapidly absorbed. This procedure is similar to that advised by Pirquet; but it differs in the careful preliminary excoriation of the skin, and thus renders more certain the contact of tuberculin with the skin capillaries; this difference is enough, I think, to secure success in cases where the tuberculin reaction is feeble. In seven cases in which both methods were tried side by side the reaction was positive in five with the method just recommended, and in only two with Pirquet's method. The reaction is a vascular reaction, and it is only after a careful removal of the tough epidermis that contact with the blood vessels of the skin can be ensured.

3. *The Time-Reading of the Test.*—The routine in clinical work is to read the test as positive or negative at the end of twenty-four hours, and later observations are seldom made. This is another source of fallacy. It may be granted that in a large majority of cases a positive reaction is visible after one day; but it is quite common for the reaction to be delayed until the end of two or three, or rarely four days. Therefore, though a test may be pronounced positive at the end of one day, it is never safe to record it negative until four days have elapsed. I shall give presently an example (Case 1) of how easy it is to make mistakes when, in the routine of clinical work, the arm is examined after twenty-four hours, is recorded as negative, and is never looked at again.

In a previous paper[5] I suggested the definition of a positive reaction as a "red papule that persisted for seven days." Since that was written in 1909 my subsequent experience has confirmed me in this definition. Calmette[2] states that the reaction generally disappears in "a few days." I have watched the behaviour of many positive reactions for weeks. Even in feeble reactions I have never failed to see a dark discoloured papule at the end of two weeks; and it is common to see clear evidence of a positive reaction at the end of a month. The tuberculin cutaneous reaction is a chronic enduring reaction: it may be slow in appearing, but it is always long lasting; and in that respect it shows its kinship to the slow inflammation of a true tuberculous process. There need be no fear that if a test has not been read until after a week a positive reaction may have come and gone in that time. It is worth repeating that while a positive reaction may be recorded after a day, a negative reaction (and this is the more valuable clinical aid) may not be accepted until at least four days have elapsed. It would be a safer, though perhaps less convenient, way to read the test at the end of a week rather than at the end of a day. In all important and doubtful cases the practice of observing the arm daily for a week is to be recommended.

The size of the papule is of little importance. It generally exceeds 5 mm. with the above technique; but in a few cases is less than that, and yet is to be regarded as positive if it persists for a week.

4. *The Use of a Control.*—Up to a few months ago the control I used was a 50 per cent. solution of glycerin and water. Since then I have used normal horse serum, which has proved a more severe control, as it gives not seldom a small inflammatory papule. This, however, has always disappeared in four days. But its appearance makes it necessary to delay the recording of a small or doubtful positive reaction until this time has elapsed; if this is not done, pseudo-reactions, sometimes called traumatic reactions, may be accepted as true positives. It will thus be seen that the practice of reading the cutaneous reaction at the end of one day may introduce two kinds of fallacy: it may omit late and feeble positive reactions which may develop after a day; and it may include false positive reactions which will have disappeared in a few days. But the use of a normal serum control ought to guard against the latter fallacy.

There are obstinate critics who argue that any albuminous substance rubbed into the skin may produce an inflammatory reaction, and who put no faith in the specific character of the tuberculin test. Such an argument can neither be proved nor disproved. But *post-mortem* evidence, which has now been produced in great amount, makes it reasonably certain that a positive cutaneous reaction indicates a tuberculous focus in the body.

### *Alleged Failure of Test in Advanced Tuberculous Disease.*

I shall now cite a few examples from my own experience to show that, with the technique just described, positive reactions can be obtained in cases of massive and advanced

tuberculosis in children. With the above technique I have not failed so far to obtain a positive reaction in any case of tuberculous meningitis, acute miliary tuberculosis, massive abdominal tuberculosis, and acute pulmonary phthisis.

*Case 1.*—Mary F., aged 11 years; acute phthisis. Admitted June 3rd, 1921. Great emaciation and weakness. Large hard mass of glands in the right side of neck; signs of consolidation and catarrh in the right lung. Cutaneous test, performed June 5th, was negative two days later; the child was not seen again until June 23rd, when the reaction was positive. A second test, done on June 23rd, was positive. July 25th: emaciation and weakness extreme; tubercle bacilli in sputum; third cutaneous test positive. Death, sixteen days later. No *post-mortem* examination.

*Case 2.*—Charles S., aged 13 months; pulmonary and miliary tuberculosis. Admitted December 3rd, 1921, with fever, emaciation, and weakness. Signs of consolidation in right middle lobe of lung; rapid progress of disease. Cutaneous test, made nine days before death, positive. *Post-mortem* examination showed tuberculous bronchopneumonia of right middle lobe; miliary tubercles in both lungs, liver, and spleen; and tuberculous mediastinal glands.

*Case 3.*—Francis C., aged 15 months; general tuberculosis. Admitted February 1st, 1922, in extreme weakness and emaciation; death in twelve days. Cutaneous test positive six days before death. *Post-mortem* examination showed tuberculous cervical and mediastinal glands; large miliary tubercles in both lungs, especially the left; tuberculous ulcers in intestine, and tuberculous mesenteric glands; miliary tubercles in liver, spleen, and kidneys.

These cases have been selected because of the extensive or acute nature of the disease, and also because a positive test was obtained in an extremity of weakness and emaciation and within a few days of death.

McLean and Jeidell,[3] in a report on 3,742 Pirquet tests in young children, found 44 negative reactions in cases proved to be tuberculous by autopsy or by the discovery of tubercle bacilli during life. The technique of the test was as follows:

"Two light scratches were made approximately 1/4 in. in length and 2 in. apart. Into one scratch the tuberculin (undiluted O.T.) was lightly rubbed with a toothpick having a flat end; the other scratch was used as a control. In doubtful cases the test was repeated. It was not usually considered negative until forty-eight hours after application."

Dunn and Cohen,[4] in reporting failures of the test in a considerable number of cases of tuberculous meningitis, peritonitis, and miliary tuberculosis, give no account of the technique of making and reading the test. It may be presumed that it was carried out in a similar way. There is no doubt that their experience of failure in advanced tuberculosis is amply confirmed by other investigations employing a similar technique.

My own experience with a different technique is as yet small compared with that of the investigators mentioned, but it has included every type of tuberculous case, and it suggests that when care is taken to apply tuberculin thoroughly to the skin, and that when the standard of a negative test in severe disease with weakness and emaciation is not the absence of reaction in one or two but in seven days, the Pirquet test does not fail even in massive tuberculous disease. If further experience should confirm this, the clinical significance of a negative test will be increased; it will then absolutely exclude tuberculous disease. But the technique of the test will require modification on the lines laid down in the present paper.

One other point may be briefly mentioned. I am not as yet prepared to say that with this improved technique positive tests can be obtained in acute illnesses, such as pneumonia or measles, with an underlying tuberculous infection. At present I am trying to collect evidence on this point. In any case, the point is not of clinical importance; a considerable personal experience of such cases with the ordinary technique has shown me that a positive reaction can be obtained soon after the crisis of the acute illness.

REFERENCES.

[1] C. F. von Pirquet: *Feer's Pediatrics*, 1922, p. 737 et seq. [2] A. Calmette: *La Tuberculose*, 1920, p. 458 et seq. [3] S. McLean and H. Jeidell: *Amer. Journ. Dis. Children*, vol. xxiv, p. 73. [4] C. H. Dunn and S. A. Cohen: *Amer. Journ. Dis. Children*, vol. xxi, p. 187. [5] C. McNeil: BRITISH MEDICAL JOURNAL, 1909, ii, p. 564. [6] C. McNeil: *Edinburgh Med. Journ.*, April, 1912.

# THE THERAPEUTIC USE OF TUBERCULIN.

BY

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VIEWS on the use and value of tuberculin are so various, discrepant, and contradictory that no final judgement can be reached until the actual protocols of evidence are produced and submitted to a close and searching analysis and criticism by a judicial tribunal that recognizes the distinction between evidence and comment or assertion. Guessing in the process of diagnosis and uncertainty in the evaluation of essentially different methods of treatment should be excluded.

The diagnosis must be based upon the presence of tubercle bacilli in the discharges from the affected parts or organs; and since in all but pulmonary cases in adults and in all cases in children it is impossible to determine whether the disease is due to the bovine or to the human type of bacillus, these cases should be excluded. Pulmonary tuberculosis in adults with tubercle bacilli in the phlegm is almost invariably due to the specific action of the human type of bacillus, and therefore constitutes the ideal material for determining the value and trustworthiness of tuberculin in treatment and even in diagnosis. Another cogent reason why pulmonary tuberculosis should be selected for this investigation is that this is the prominent lesion in almost 90 per cent. of all the serious forms of tuberculosis in man; and of the remaining 10 per cent. at least half may be reasonably traced to pulmonary tuberculosis.

Long ago I laid it down that in testing the value of any method of treating pulmonary tuberculosis, logic required that no other system should be used. At the Tuberculin Dispensary we allowed patients to continue their life as usual, neither insisting upon the "open window" nor using drugs, and only giving extra food when it was quite obvious that the patient had not the money to buy enough food to maintain normal nutrition. Pulmonary tuberculosis is, however, a very variable disease, because both soil and seed vary. Inherent qualities, often inherited, in the individual, age, local conditions of the lungs, sometimes created by certain infections, such as measles, whooping-cough, and influenza, which may convert a latent into an active process of tuberculosis, and general biochemical anomalies in the tissues, blood, and lymphatics (deficiency of endocrines, deficient calcium, malnutrition), are among the factors in the soil that favour definite disease. The seed also varies in quality, virulence, and quantity, but there is no clinical way of measuring these variations. Accordingly one must not draw conclusions from the results, whether good or bad, in a few cases, must not select cases, and must not publish anything short of a series of at least fifty consecutive cases in various stages of the disease treated exclusively with the remedy to be tested.

After a full course of treatment the cases must be examined regularly two or three times every year for three years, and then once a year at least for another three to five years. Anything less than supervision for five years spoils the investigation, because it is well known that early stages of tuberculosis without any treatment may not become serious for four or five years. For cases treated in the second stage five years may be considered ample, but in my investigation there has been supervision for eight years and more. The control of these cases is very difficult among the poor, who constantly change their home; and during the war the difficulties were intensified. Nevertheless this exacting condition is essential, because the sure test of the value of any method lies in the duration of life after treatment has begun. The length of life, ability to work, sense of energy, the state of the pulse and appetite, even the appearance of the patient to the practised eye, and especially the evidence in changes in the quality and amount of the phlegm, furnish more useful evidence of improvement than the most meticulous description of physical signs. Paying due respect to these exacting conditions, I am prepared to produce evidence which goes to prove that the method, which I have evolved from a continuous experience since the earliest days of tuberculin, yields results far better than any I have seen published in any English, German, or American literature. Tuberculin has not had a fair trial in England, except at the hands of myself and a few of my pupils, who soon learnt from experience that tuberculin, used in accordance with definite principles, is quite free from danger, and that the timid use of tuberculin is a poor substitute for

the method of increasing doses, controlled exclusively by a meticulous regard for the clinical signs, manifested in variations in temperature, in weight, and in pulse rate.

The value of tuberculin treatment cannot be accurately assessed in children affected with enlarged cervical glands. The reasons are obvious to those familiar with the varying nature of glandular swellings in children, especially between the ages of 5 and 15. At this age period children are liable to suffer from many sorts of gland swellings, quite independent of tuberculosis. Further, except by operation and laborious investigations, one cannot say whether the swelling is due to infection with human or bovine tubercle bacilli or with other infective agents.

In certain cities, notably Edinburgh, the bovine tubercle bacillus is shown to be a very common cause of enlarged cervical glands, and the concentration of these forms of gland tuberculosis in children's hospitals may give a wholly wrong impression of the prevalence of tuberculosis in children even in Edinburgh. There is certainly some evidence that in children over 5 years of age the bovine type of tubercle bacilli causes lesions more prone to regress and to become fibrotic than those induced by the human type. In Edinburgh especially any deductions based upon the effects of tuberculin in tuberculosis of the cervical glands in children must be suspect.

Statistics show that in children between the ages of 5 and 15 the mortality from tuberculosis is one-third to one-fifth of that in the earlier years of life, and one-fifth to one-tenth of that in the later years. It would seem that at this period the human tissues acquire a special resistance, and at no other period is this natural resistance greater. I have suggested that this remarkable immunity during these years is due to mild infections with bovine tubercle bacilli in early life. The great prevalence of general tuberculosis, and of tuberculosis of the udder in dairy cows, justifies the assumption that very few children can be expected to escape the risk of infection with bovine tubercle bacilli by the lymphatics of the mouth and cervical glands and other sections of the alimentary tract. These mild infections explain, too, why so many young children, all of whom drink cow's milk, give a von Pirquet reaction. The value of this reaction as a diagnostic test must therefore be discounted; it is just the cutaneous expression of these mild infections. These lesions tend to regress at this period. My own inclination is to the view that if the lesions do not regress the infective agent is more likely to be the human type of bacilli. Certainly the frequency of a von Pirquet reaction does not indicate the frequency of infection by the human type of tubercle bacillus. But the main point I wish to urge is that with so many indeterminate variants in the processes of gland tuberculosis in children, especially between the ages of 5 and 15, children of this age furnish about the very worst material for affording clear evidence as to the value of tuberculin either in diagnosis or treatment. Hundreds of children between these ages are taken to the seaside, and of course improve, because at these ages the natural tendency is towards improvement. No harm is done. Margate is better than London, if people can afford it, but it is not proved by any means that Margate air has cured the tuberculosis because the symptoms and signs regress. The symptoms and signs would have regressed if the child had stayed in London. The test of the value of Margate air must be made at a time of life when this disturbing age factor is eliminated. In like manner Sir Robert Philip's opinions[1] must remain suspect until he gives proof that the subjects of his experiments with inunctions of tuberculin did not belong to this age period, distinguished by an extraordinary phase of immunity.

With much that Sir Robert Philip has stated I agree; I have expressed the same views again and again. But good observer though Petruschky is, I do not approve of his method of dosage, and I do not trust his method of inunction. The test of the relative value of different methods of using tuberculin depends upon the duration of life after treatment in a series of cases of similar character. Years ago I came to the conclusion that the minimum dose for securing permanent results was at least 0.6 c.cm. of the stronger preparations. This opinion is based upon more than twenty-five years' continuous experience in hundreds of cases, in various stages. Shortly before his death, when I related this experience to Professor Koch, he said:

"That is remarkable. We have proved, by complement fixation tests, that 0.5 c.cm. must be given before antibodies can be demonstrated in the blood; while not less than 0.3 c.cm. neutralizes a pre-existing von Pirquet reaction."

I have also shown, by some experiments independently controlled, that, after large doses, the opsonic index may be raised to 2 and even 3, and there is no negative phase of any duration. Moreover, in 1906, I proved, by Arneth's method, that, after large doses of tuberculin, a great improvement occurs in the character of the leucocytes, which probably play a part in the production and action of antibodies. Apart from these laboratory methods I have shown that the subcutaneous injection is a simple, painless, and accurate means of exhibiting tuberculin. I can produce the protocols as evidence at any time, and, while my methods may be far from perfect, I can only be convinced by the details of protocols in evidence that Sir R. Philip can in any way approach the success I have achieved by large doses given subcutaneously.

Subcutaneous injections, given properly and in the proper place, are not painful; and young children, properly handled, rarely ever shed a tear. Ten years' experience at the dispensary proves this. The subcutaneous method is painless, and is free from danger in competent hands; my thirty years' experience convinces me of this. And after three years' experience at my Tuberculin Dispensary, all the doctors assisting me wrote to the BRITISH MEDICAL JOURNAL and subscribed to this view. The subcutaneous method is the best way of giving large and progressively increasing doses—perhaps the only way—as all of the tuberculin passes into the circulation. There is no way of telling how much tuberculin may be absorbed by inunction, and Sir R. Philip does not mention any maximum dose. It would vary with the type of skin, sex, age, temperature, and other conditions. Possibly inunction has an advantage when the lesions are localized in the cervical glands. The lymphatics of the skin drain certain areas, and the lymph makes straight for the associated glands of these areas. Hence inunctions would favourably affect these glands harbouring the bovine type of bacillus. But the dominating purpose in the treatment of tuberculosis in man is, not to treat these mild conditions due to bovine tubercle bacilli, but to treat all tuberculous lesions in the body, and above everything the more dangerous lesions, associated with the presence of the human strain of bacillus, in the lungs, kidneys, deep glands of the body, and in serous membranes. On anatomical grounds I cannot see that inunctions can be as effective as subcutaneous doses in tuberculosis of bones or joints. Tuberculin is not a counter-irritant.

Except in lupus and tuberculosis of the cervical glands, tuberculosis is mostly situated in parts which can be best approached by large doses through the general circulation. No doubt in subcutaneous injections tuberculin travels also by the lymphatics, and may cause the lymphatic glands to swell; but the crux of the argument is the success achieved by the methods in question. In cases of pulmonary tuberculosis treated in 1910, 1911, and 1912 at the Tuberculin Dispensary, these are the results:

In cases in Stage I, with tubercle bacilli in the phlegm, no death was known to have occurred in any case from tuberculosis in the succeeding ten years. In cases in Stage II, with tubercle bacilli in the phlegm, 67 per cent. were proved to be alive nine years later. In fact in Stages I and II, after a period of nine years, 72 per cent. were still alive and able to work.

The success or failure of any method depends exclusively upon the results obtained in these stages of the disease (Stages I and II). If Sir R. Philip will produce the protocols of any similar consecutive cases of pulmonary tuberculosis, with tubercle bacilli in the phlegm, treated by the percutaneous method (inunction), I am ready to produce my protocols and leave the decision in the hands of an unbiased tribunal.

Dr. William Gordon[2] has given a comparison of results, four years after treatment, at different sanatoriums in cases (open and closed) in Stage I as follows:

| | | | |
|---|---|---|---|
| Frimley ... ... ... ... | 15 | per cent. | dead |
| Midhurst ... ... ... ... | 20 | " | " |
| "London cases" (Dr. Bardswell) ... | 31 | " | " |

The Brompton Hospital Reports show that in 86 cases in Stage I with tubercle bacilli in the phlegm treated in 1905, 1906, and 1907, and checked by after-examinations up to 1912 (four to seven years after treatment), the results were 23 dead and 29 lost sight of. This is equivalent to 23 deaths out of 57 cases in the course of the four to seven subsequent years—a death rate of over 40 per cent.

In 1910, 1911, 1912, and part of 1913 I treated with large doses of tuberculin (TA) alone (as a rule a final dose of 1 c.cm.) 106 early cases, of which 16 had tubercle bacilli in

the phlegm, and I had not a single death from tuberculosis to record down to the year 1920. Moreover, I had one striking control case.

A young boy was brought to us. He had positive physical signs at one apex, and at the Lister Institute a few tubercle bacilli were found in his phlegm. We treated him for two months and he gained 2 lb. and improved very much. Unfortunately we notified the case. Thereupon a lay visitor went to the house and urged the mother to take the boy to Brompton Hospital. I lost sight of the boy for more than a year, when the mother told me the tragic story. At the instance of the lay visitor the boy went to Brompton and was six weeks in the hospital for observation. The mother was then told that the boy had not tuberculosis. (Tubercle bacilli had been found by us.) When I saw the boy again he was in a hopeless third stage, and he died in a few months. Our diagnosis was tragically confirmed.

Thus the only early case that we were not allowed to treat died within two years; surely a striking control. These results obtained by me in England almost exactly tally with the results I have published in my book.[3] My records in Australia and London are quite good enough to give me unswerving faith in large doses of tuberculin given subcutaneously as easily the best remedy for tuberculosis in all its forms.

REFERENCES.
[1] BRITISH MEDICAL JOURNAL, March 24th, 1923, p. 493. [2] Ibid., March 31st, 1923, p. 556. [3] *Tuberculin in the Diagnosis and Treatment of Tuberculosis.*

## THE TREATMENT OF PNEUMONIA.*

BY

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PNEUMONIA causes more deaths than tuberculosis, and more people die from it between the ages of 35 and 55 than at any other period. It carries away insidiously the aged without an acute attack. The death rate is put at 20 per cent., and with influenza at 30 per cent. This means one death out of every five or six patients; annually over 40,000 persons die from it.

Pneumonia at its outset is a septicaemia caused by a diplococcus. All its symptoms are the result of the influence of the bacillary toxin on the nervous system. Its entrance is always at some local focus of the lung evidenced early by dullness and diminished air entry, but its spread is often very rapid. Hence the importance of the early localization and diagnosis and active measures.

The early attempt at defence is consolidation, to limit the focus of infection; the organisms are surrounded, and there is a leucocytosis whereby the phagocytic action of certain blood-cells destroys the organisms. It must be remembered that the lungs contain a larger number of leucocytes than any other organ, except the marrow (their birthplace) and the spleen (their grave). The clotting of the fibrinous exudate in the alveoli which gives rise to consolidation, and the attack by emigration into this of the leucocytes shows an attempt on the part of Nature to localize the infection and prevent its spread. But leakage occurs, and before consolidation takes place certain organisms and toxins have already spread to the blood, causing the acute septicaemic symptoms. Nature's third attempt at defence is the formation of antibodies. Let me summarize the main principles, as it appears to me, on which we should go in attempting to counteract the septicaemia.

There is acute nerve exhaustion from intoxication. This demands absolute rest. The least movement of the patient is exhausting, especially any efforts by himself. Once the diagnosis is made he should not be moved for examination. He should not be allowed to do anything, and bed pans and urine glasses are essential. With this acute nerve exhaustion there is nerve exhaustion to the heart from the poisoning of the vasomotor centre and of the heart muscle. Therefore the importance of rest is especially demanded by an organ called upon to do extra work by the resistance to the circulation in the lung alveoli. A patient may fall back dead on attempting to sit up. The consolidation of the lung alveoli lessens the oxygenation of the blood, and has therefore thrown out of action a defensive auxiliary of the blood. This demands free ventilation around the patient.

The high temperature, the rapid breathing, rapid pulse, the pain, all add to the patient's discomfort, and therefore it is essential that his comfort and his environment should be attended to by a skilled nurse, or one to whom all the particulars of the necessary details are made plain.

Various lines of treatment have been adopted in the past:

1. Active bleeding and purgation; its ancient history and objects are well known, and I need not dwell on this.

2. Poultices and expectorants may be said to have died out.

3. "Expectant" treatment may be summed up as doing what each individual fancies best. Where groups of cases have been treated by certain definite drugs it has not infrequently been claimed that some of them were "specific"; types of cases may vary greatly in severity, according to the virulence of the organism, or the influence of the locality, or of the acquired natural resistance, so that claims founded on statistics are of little value. I believe at present there is no specific drug for this disease. Any drug to be specific, or any combination of two drugs to deserve such a claim, must show equal results in the hands of any practitioner anywhere. By the expectant treatment thousands of lives are lost annually.

4. "Chloroform" treatment has been used in America. Its object was to give rest to the inflamed lung. It has not had, so far as I know, a long run. It aids, in my opinion, the basic factors causing the distress, and can have no influence on the intoxication.

5. The application of ice has been advocated by many, the late Dr. David Lees among others, and has been tried in Dublin hospitals. It demands the earliest recognition of the disease—the localization at its earliest site. Two ice-bags are placed so as to include between them the inflamed lung. It has a scientific and rational basis, and good results have followed its use. The pneumococcus is very sensitive to changes of temperature, and will not live below 28° C., nor above 42° C.—the optimum being 37.5° C. The greater the virulence of the organism the more marked its sensitiveness to temperature. The ice inhibits its multiplication, lowers the patient's temperature, adds to his comfort, and is helpful to sleep. I have often used ice in high temperatures with benefit. In general practice no doubt public opinion would be shocked, but it is of great use to give ice to suck. Chills do not occur. It takes time to reduce high temperatures by rubbing with ice, but the sensation is comforting. I have often seen and used ice for the hyperpyrexia of sunstroke, the whole naked body being on blocks of ice and rubbed with ice.

6. The object of lung puncture is to cause a local accumulation of polymorphonuclear leucocytes by setting up a focus of irritation in the pneumonic areas and so stimulating phagocytosis. It is applying to the lung Kraske's principle in the local treatment of erysipelas, his treatment for the latter disease being to make superficial incisions about an inch or two from the spreading margin all round the affected part. It is considered analogous to laparotomy in the ascitic variety of tuberculous peritonitis. This line of treatment demands accurate determinations of situation and area of consolidated patches; a hollow needle or trocar about two inches long is put into the consolidated patch and left there for thirty seconds. If more than one patch is present, and frequently general practitioners get these cases with many, the largest is selected, and if there are several large patches other punctures are made. Strict asepsis is essential, and the best sites are said to be the axillary lines. Striking results have been claimed by its advocates, but as a method for general practice it does not seem desirable with other measures yet available.

7. Studies at the Rockefeller Institute of Medical Research (referred to in the memorandum on pneumonia issued by the Local Government Board in 1919) led to the recognition of four types of pneumococcus; so far antipneumonia serum has been found effective only in cases due to Type 1. In so acute a disease we cannot afford to wait for the determination of the type, and as the serum has to be injected every eight hours it is out of court in general practice.

A bright hope lies in the success attending vaccine treatment. Recovery depends on the patient providing sufficient antibodies against the bacteria and their toxins in the blood; this and this only is the specific treatment available. Early diagnosis is essential: given during the first twenty-four hours, brilliant results have been obtained. A vaccine must be used early, and it is not necessary to wait for a vaccine to be prepared. By the use of vaccine we are helping Nature, and by accumulating antibodies in the blood we have them available for the lung when the fibrin has been liquefied. In other septicaemias (streptococcus, staphylococcus, gonococcus, *B. coli*, etc.) vaccines have been successful. Should we not

* A paper read before the North Middlesex Division of the British Medical Association.

all adopt this method and see the result on all hands? Is the gravity of the disease and the saving of life not sufficient to warrant its trial? I think it is. Dr. Wynn of Birmingham says:

"I know nothing in the whole range of medical treatment so dramatic as the rapid defervescence which follows the injection of a suitable dose of vaccine to a patient suffering from pneumonia or influenzal pneumonia within twenty-four hours of its onset. The vaccine I have used is made from primary cultures or at most first subcultures. It should not be detoxicated or sensitized. For acute pneumonia it contains several strains of pneumococci. . . . The important points are that it should be given early and in sufficient amount."

He gives 100 million pneumococci to an adult; to a child aged 12 to 14 he gives 40 to 50 million, and to a child aged 2 to 3 years 10 to 20 million. These doses have been arrived at after many years of experience. When such a dose is used during the first day of the disease, in the majority of cases the temperature falls to normal on the day following and no further treatment is required. By each day's delay defervescence is less likely, and the dose has to be repeated every twenty-four hours until the temperature is normal. His results* show:

| Day Treated. | No. of Cases. | Recoveries. | Deaths. | Temp. Normal in — | |
|---|---|---|---|---|---|
| | | | | 24 hours. | 48 hours. |
| First | 28 | 28 | Nil | Per cent. 71.4 | Per cent. 85 7 |
| Second | 23 | 22 | 1 | 47.85 | 56.5 |
| Third | 22 | 20 | 2 | 50.0 | 50.0 |
| Fourth | 20 | 15 | 5 | 30.0 | 40.0 |
| Fifth | 14 | 12 | 2 | 35.7 | 63.5 |
| | 107 | 97 | 10 | 50.0 | 65.0 |

In pneumonia there is no evidence of a negative phase, and so the early large dose is given safely.

Stock vaccines should be used from first cultures and from a highly virulent strain. Even if a case is injected from a stock vaccine and the case does not afterwards develop consolidation, no harm is done. No harm is done by using antitoxin for a suspected case of diphtheria. Sir Almroth Wright, in his work on the use of vaccines in pneumonia, states that inoculation in the form of a single large dose, administered in the incubation period, often arrested the disease and prevented death. I put this method forward with a plea for trial, as it seems to me our best line of action for the future. My results from stock vaccines are striking.

I cannot lay too much stress on the hygiene of the room—free ventilation is essential. Cases have been treated in America in all weathers on the roofs of hospitals, and in the Philadelphia General Hospital, where the cases were of unusual severity, the death rate of 53 per cent. before the adoption of the open-air treatment was reduced after its adoption to 38 per cent. In the Prince Edward Hospital, Sydney, the patients have since 1908 been treated in the open day and night, and have recovered more rapidly and with less complications and less necessity for drugs. I always advise the windows to be well opened, and so long as there is no discomfort from draughts and there is sufficient light covering, no harm will accrue. Overheating of the room should be avoided—the patient is already hot enough; fresh air is the best germicide, and the patient is gasping for a cooler air.

The actual degree of temperature is of little scientific interest, as one can usually tell from the skin and the pulse the existence of a feverish state. Its record is of value to the nurse to avoid too heavy clothing and at a crisis for more. There is a tendency to put on too much covering both by nurses and relatives. It adds to the discomfort of a feverish patient. If the patient is hot it is well he should lose heat. Pneumonia jackets are useful provided they are thin and not too heavy.

Pulse and breathing rates should always be recorded. The respiration-pulse ratio normally is 1:4; but in pneumonia it may be 1:3, 1:2, 1:2.5, 1:1, or even 2:1. It is the index factor of how the patient is going, and helps in prognosis under ordinary lines of treatment. A case is not necessarily hopeless with 1:1. The heart condition decides.

* *Lancet*, September 2nd, 1922, p. 493.

Potassium iodide and creosote have been advocated. With a tuberculous focus it is possible to loosen some fibrous tissue of a semi-healed area. Inunction of 10 minims of pure creosote in half an ounce of water, with or without one drop of oil of peppermint, has been used with success; it causes sweating and, it is claimed, aborts the disease. One of the oldest and best drugs is calomel. Digitalis is recommended from the outset by some, strophanthus by others. Neither of them raises blood pressure, and the cardiac muscle is enabled to act with regular impulse. They are the only cardiac stimulants necessary, and if employed should be used from the outset. Strychnine and alcohol are probably of little avail. Tincture of nux vomica with digitalis is better than injections of strychnine for a flagging heart. To produce sleep 1/6 grain heroin may be given: 5 to 10 grains of Dover's powder in a saline has been recommended, but I never use it. Paraldehyde in doses of 1 to 2 drachms in very sweet tea is safe. Soap liniment will relieve localized pleuritic pain. For heart failure injection of 10 per cent. glucose is said to be the most valuable measure.

The cyanosis depends on anoxaemia of the arterial blood, and if oxygen is administered properly and by a suitable apparatus, such as Haldane's, it has been proved that this anoxaemia will be diminished and so the cyanosis relieved. Otherwise it is probably useless. Too often it is used as a last resource when nothing could be achieved. It is more important to let the fresh air into the room from the very outset.

As regards diet, milk (citrated if there is vomiting), with soda-water or barley water, or a little flavour of tea, or malted milk may be given. All sugars are good for the heart, so from the outset sugar or honey should be given. Water is essential in small quantities, as also is ice. Two pints of water should be given in the day—albumin water or water flavoured with beef-tea; beef-tea alone is not advisable. The mouth should be cleaned every two hours.

## PERNICIOUS ANAEMIA WITH FOCI OF INFECTION IN THE ALIMENTARY TRACT.

BY

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It has long been held that foci in the alimentary tract may play an important part in the production of pernicious anaemia; it has not been clearly established exactly how this obtains, and the theory does not reconcile the facts that, whereas pernicious anaemia is comparatively uncommon, septic foci are relatively of frequent occurrence.

Hurst[1] believes that achlorhydria is almost invariably the predisposing cause. He collected 12 cases in which this was known to have preceded the onset of anaemia by periods of from one to twelve years. He considers the absence of HCl, probably in the majority of cases of constitutional origin, to be the important factor, and not the cause of the absence. According to him the achlorhydria not only favours infection but results in the arrival in the intestine of proteins in an unaltered condition. He classifies the possible results which may accrue from achlorhydria thus:

1. Delayed protein digestion, with an undue proportion remaining in the lower part of the ileum, in a form readily prone to bacterial decomposition.
2. Provision of material likely to form toxins, which may be (*a*) haemolytic, the cause of the anaemia; (*b*) neuro-toxic, causing subacute combined degeneration of the spinal cord; (*c*) a toxin stimulating bone marrow to form abnormal types of red blood cells.

The fact that subacute combined degeneration of the cord may appear with little or no evidence of blood changes in no particular detracts from the likelihood of the above theory being practically possible, and this is enhanced in value by the good results Böttner and Werner[2] obtained by duodenal lavage. Nor does the order in which changes may appear in the blood or in the cord. On the other hand, Biffis[3] states that achylia gastrica may be absent, and that it occurs later than the blood changes. Maynard and Sturton[4] record two cases of pernicious anaemia with foci in the alimentary tract, one with dental sepsis and the other with colitis. The autopsy of the latter showed ulcers in the ileum. They

quote a fatal case of pernicious anaemia following dysentery. Hunter[5] describes a case of subacute combined degeneration of the cord with patches of croupous enteritis in the jejunum.

It is mainly because of the prominence of the alimentary lesions that the following three cases are described.

### CASE I.

W. D., male, aged 39, was admitted to hospital for dysentery on December 13th, 1921, with a history of having had malaria, gastritis, colitis, and dysentery in 1919 while in India and Mesopotamia. In April, 1919, examination of stools, liver, and spleen proved negative. In January, 1920, the spleen was palpable and there was tenderness of the descending colon; some carious teeth were removed. In June, 1921, he was sallow, and there was tenderness of the colon; the liver and spleen showed nothing abnormal.

On examination the patient was sallow and anaemic; the mouth was clean; nothing gross was detected in heart, lungs, or abdomen. Blood pressure 96. There was oedema of feet. The urine was normal; examination of stools repeatedly negative. There was nothing to note in the central nervous system except marked pallor of the optic discs without haemorrhages. A test meal gave no free HCl. The Wassermann reaction was negative. Examination of the blood showed:

| | |
|---|---|
| Red corpuscles | 1,370,000 |
| White corpuscles | 2,700 |
| Haemoglobin | 37 per cent. |
| Colour index | 1.3 |
| Differential count— | |
| Polymorphonuclears | 45 per cent. |
| Lymphocytes | 48 ,, |
| Large mononuclears | 6 ,, |
| Eosinophiles | 1 ,, |

Microcytes, megalocytes, and poikilocytes were present. There were no normoblasts nor megaloblasts.

*Course.*—There was occasional slight to moderate rise of temperature. Severe vomiting for one week. The liver became easily palpable. After several courses of arsenic and drachm doses of dilute HCl with his meals, he was discharged, after five months, with a blood count of nearly 5 million red cells and 3,000 white, and a colour index of just over 1, declaring himself well. The spleen could never be felt, and no megaloblasts were ever seen.

### CASE II.

G. S. C., male, aged 23, was admitted to hospital for sprue on November 21st, 1922. He had had jaundice and diarrhoea when in China from November, 1919, till May, 1920. In London, in 1921, he was treated for sprue by alkalis, pancreatic extract, *B. coli* autogenous vaccine, and by dieting. He gave a history of frequent copious stools, sore mouth and tongue, and much flatulence.

Examination showed: marked pallor of membranes; much emaciation with dry scaly skin. Teeth excellent; tongue smooth and ulcerated. There was no enlargement of the heart; apex beat fixed; reduplicated basal second sound. Early clubbing of fingers. Blood pressure, 88. Friction over lower half of lung from base to heart's apex. No tubercle bacilli had ever been found in the sputum. The abdomen was doughy and distended; liver dullness decreased. The stools were copious, acid, and frothy, with excess of fat, and yielded a plentiful growth of *B. coli* and streptococci; yeasts also were present, but no protozoa. There was nothing abnormal in the central nervous system except marked pallor of the optic discs without haemorrhages. The patient was too ill for analysis of the gastric contents. Examination of the blood showed:

| | |
|---|---|
| Red corpuscles | 1,500,000 |
| White corpuscles | 2,000 |
| Haemoglobin | 40 per cent. |
| Colour index | 1.4 |
| Differential count— | |
| Polymorphonuclears | 45 per cent. |
| Lymphocytes | 52 ,, |
| Large mononuclears | 3 ,, |

Polychromatophilia, anisocytosis, and poikilocytosis were present. There were two normoblasts and many megalocytes.

*Course.*—There was an occasional rise of temperature; petechial haemorrhages; loss of left knee-jerk. Hypostatic pneumonia developed, and death took place on February 8th, 1922, in spite of all forms of treatment, both dietetic and therapeutic. No *post-mortem* examination was obtained.

### CASE III.

W. A., male, aged 34, was admitted to hospital for dysentery on September 16th, 1922. His history showed that he had had bacillary dysentery in August, 1918, and malaria in September, 1919. In January, 1920, however, he suffered from no disability. In April, 1920, he had his teeth attended to. In February, 1921, the spleen was palpable. He complained of loss of appetite, sore tongue, and diarrhoea.

On examination he seemed to be in fair condition, but was very pale. The mouth was clean; tongue atrophied. Liver not palpable; spleen, two fingers. Nothing to note in the central nervous system except pallor of the optic discs without haemorrhages. He passed one to three stools daily with nothing to note. The Wassermann reaction was negative. A test meal gave no free HCl. Examination of the blood showed:

| | |
|---|---|
| Red corpuscles | 2,200,000 |
| White corpuscles | 4,100 |
| Haemoglobin | 42 per cent. |
| Colour index | 0.95 |
| Differential count— | |
| Polymorphonuclears | 35 per cent. |
| Lymphocytes | 60 ,, |
| Large mononuclears | 3 ,, |
| Eosinophiles | 2 ,, |

There was some anisocytosis and poikilocytosis; granular basophilia well marked; one normoblast.

*Course.*—He ran an evening temperature of 100°. His liver became palpable. He developed copious early morning stools, very acid, and containing undigested fat. Yeasts, but no organisms of protozoal nature were found. There was one attack of bright red rectal haemorrhage. One knee-jerk disappeared, to reappear; his red cells became progressively less in number; megaloblasts and high colour index made their appearance, and he died on November 15th, 1922.

It is quite possible that many would place Case I in the category of aplastic anaemia, but this contention need not be disputed, because, however strongly this might be urged, the fact remains that the anaemia was of a primary as opposed to a secondary type. It is not unlikely that the colitis was never of dysenteric origin, since no evidence could be found in his army documents as to the exact cause of the dysentery, but presumably at one time he was diagnosed as suffering from true dysentery by those competent to make the clinical diagnosis.

Case II is of exceptional interest. Manson-Bahr[6] says that the anaemia of sprue may approach the pernicious type, with alteration in the size and shape of the erythrocytes and with the appearance of normoblasts, and that it is apparently secondary to the intestinal toxaemia. Bassett-Smith[7] holds that sprue is different from pernicious anaemia in that the colour index is low, and that the anaemia is a true secondary and not a primary one. The anaemia in this instance also would appear to be of the aplastic type.

The autopsy of Case III showed not only the changes usually found in pernicious anaemia but definite ulcers in the large gut, which was in part entirely denuded of mucous membrane, so as to be quite transparent. An enlarged ileocolic gland was seen draining the area of an ulcerated patch in the intestine. This was especially looked for, since these enlarged glands can be felt through the abdominal wall in many cases of chronic dysentery. The gastric mucous membrane was much atrophied, and 1½ inches from the pylorus there was a thickened encapsuled mass in the duodenal wall, projecting into the lumen of the bowel, giving the appearance of an adenoma.

Until some organism or virus can be identified as the specific cause of pernicious anaemia it would not appear unscientific to suggest that the disease may be caused by a combination of circumstances. The importance of achlorhydria can be gauged by the emphasis rightly laid upon this by all authorities. Hunter has placed stress on the coexistent secondary anaemia from oral sepsis and the improvement obtained by dental toilet. The fact that toxins can more easily get into the circulation through an abraded or ulcerated surface than through a normal one lends colour to the part played by the ulceration in two of the cases quoted above, and there is every reason to think that secondary infection can be imposed upon an ulcer in the large bowel, originally dysenteric. The following case illustrates this contention.

S., aged 25, admitted to hospital for dysentery. He gave a history of having had dysentery, caused by Flexner's bacillus, in France in 1917. Had had colitis and attacks of diarrhoea with frequent stools containing blood and mucus since that time—the last attack incapacitating him for ten weeks.

Examination showed thickening of gut in both iliac fossae, and large tender glands in these regions, more marked on the left. The stools were semi-formed, and contained much bright blood and glairy mucus, and small patches of necrotic tissue lying on the outside of the faeces, and not intimately mixed with them as in the enteritis of malignant malaria. Amoebic cysts were recovered from the mucus. Sigmoidoscopy revealed congested bowel surface covered with yellowish-white mucus, and 12 cm. from the anus a small superficial ulcer. A direct swabbing from this was effected, and the stained smear showed six acid fast bacilli morphologically bovine in type.

These cases are published in the hope that any additional factor, however apparently trivial, brought to light in the investigation of pernicious anaemia may help towards establishing the cause of this disease, be it specific, or consequent

upon a chain of circumstances, the sum-total of which leads to the ultimate production of such an intractable malady.

Either Colonel Cowan or Dr. P. O. Ellison kindly carried out the bacteriological and biochemical investigations referred to in this paper.

REFERENCES.

[1] Hurst, A. F.: BRITISH MEDICAL JOURNAL, 1922, ii, 978. [2] Böttner, A., and Werner, G.: *Deut. med. Woch.*, 1921, 47, 1552–3. [3] Biffis, P.: *Policlin.*, 1921, Sez. Prat., 28, 877–884. [4] Maynard, E. F., and Sturton, S. D.: BRITISH MEDICAL JOURNAL, 1921, ii, 685. [5] Hunter, P. H.: *Proc. Roy. Soc. Med.*, vol. xvi, No. I. [6] Manson-Bahr: Manson's *Tropical Diseases*, seventh edition, p. 477. [7] Bassett-Smith, P.: BRITISH MEDICAL JOURNAL, 1922, ii, 979.

## THE ACTION OF HISTAMINE ON THE VEINS:

### A METHOD OF DIFFERENTIAL PERFUSION: NITRITES IN THE PREVENTION OF HISTAMINE SHOCK.

*(Preliminary Communication.)*

BY

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(From the Pharmacological Laboratories, Cambridge and King's College, London.)

DALE and LAIDLAW[1] have shown that in histamine shock there is capillary dilatation, with fall in blood pressure and respiratory failure within a very short time of the injection of the drug. They conclude that histamine produces an active dilatation of capillaries, and dismiss the possibility of active constriction of veins. I have devised a method of perfusion which differentiates between the action of a drug on arteries and on veins respectively.

*Method.*

Cannulae are inserted into the artery and vein of the organ; bleeding points are ligatured, and the organ after excision is perfused for a short time in the ordinary way with warm oxygenated Ringer's fluid under hydrostatic pressure, in order to wash out the blood and to determine there is no leakage. An incision is made in the organ, avoiding large vessels, or the surface may be scarified. For perfusion of the veins the Ringer's fluid is led to the cannula in the vein and the artery is occluded. The perfusion fluid now passes backwards through the veins and escapes by the incision, and the rate of flow is measured. For arterial perfusion the reverse process is adopted—the vein is occluded and the fluid from the arteries escapes as before. A fresh preparation must be used for arteries and for veins, because after the tissues have been perfused with the drug by the one channel they are so affected that only a small effect may be obtained if perfused afterwards by the other channel.

Certain details of procedure may be briefly indicated for particular organs. For the small intestine cannulae are inserted distally in the portal vein and superior mesenteric artery. The incision in the isolated loop of gut is made longitudinally on the opposite side to the attachment of the mesentery. In the liver a cannula is inserted in the portal vein directed towards the liver; another cannula is placed in the inferior vena cava in the thorax, directed tailwards, and the diaphragmatic veins are ligatured. The liver is then removed after a ligature has occluded the inferior vena cava and hepatic artery in the abdomen. After scarification of the liver separate perfusions of the portal ramifications in the liver and of the hepatic vein may thus be obtained.

For the hind limbs the usual preparation is made, and after skinning the limbs the fascia lata is removed and the superficial fibres of the thigh muscles cut away with scissors. The perfusion fluid exudes from the raw surface thus exposed.

In the lung a cannula is inserted into the pulmonary artery through the right ventricle; another cannula is inserted into the left auricle through the mitral orifice. The remains of the heart are cut away and the lungs with the trachea removed from the body. Into the trachea a small quantity of warm liquid paraffin is introduced, and the lungs are inflated to about their normal volume in the chest and the trachea ligatured. In this way air-locks are made in the bronchi. The surface of the lungs is then scarified to provide exit for the perfusion fluid. The air-locks prevent the lungs from collapsing, and the scarification allows the pulmonary artery and veins to be perfused separately.

By this method of perfusion it was found that after histamine both venules and arterioles were constricted in the isolated limbs and lungs of both cats and rabbits, and constriction of both portal and hepatic veins occurred in the liver of these animals. In the isolated intestine of the cat a similar constriction of venules and arterioles was observed. The rabbit's intestine, however, showed no constriction of mesenteric venules but only the arterial constriction. Ring preparations of the portal vein and mesenteric artery of the pig (from the slaughterhouse) also showed tonic constriction by histamine. It would appear that constriction of venules is an important action of histamine, leading to capillary engorgement and consequent oedema. In view of the above observations the shock induced in the cat, and its absence in the rabbit, would appear to be largely due to the difference in the reaction of the splanchnic veins to histamine in these animals.

These experiments suggested that a preliminary treatment by nitrites in order to dilate the veins, followed by the infusion of a sufficient quantity of Ringer's solution into the veins to fill the dilated vessels, might prevent death in the cat after a toxic dose of histamine.

A cat of 1.9 kilos anaesthetized with urethrane received an intravenous injection of 16 mg. of sodium nitrite in 1 per cent. solution; Ringer's solution was then intrafused under 20 cm. water pressure into the vein; 6 mg. of ergamine (B. W. and Co.), containing approximately 2 mg. histamine base, were injected intravenously. The animal did not require artificial respiration, and was alive one and a half hours after the injection of the histamine; the blood pressure and respiration improved considerably within half an hour.

Further experiments on these lines are in progress; a method of treatment after the induction of histamine shock is being attempted.

These experiments suggest that the wheal described by Dale and Laidlaw which arises at the point of local application of histamine may be due to intense local constriction of venules leading to local congestion and consequent oedema. This may be a protective response on the part of the organism to prevent the admission of histamine into the general circulation. If histamine shock be regarded as a generalized extension of such a response it is clear that for treatment the venules must be dilated sufficiently to provide an adequate circulation in the organism, but the oedema must be encouraged in order to assist the elimination of the histamine from the blood.

The regulation of the flow of blood through the veins would appear to be important. Gunn[2] has shown already that veins are constricted by adrenaline.

REFERENCES.

[1] H. H. Dale and P. P. Laidlaw, *Journ. of Physiol.*, lii, 355. [2] J. A. Gunn and F. B. Chevasse, *Proc. Roy. Soc.*, vol. 86, 192.

## A SIMPLE DIET TABLE.

BY

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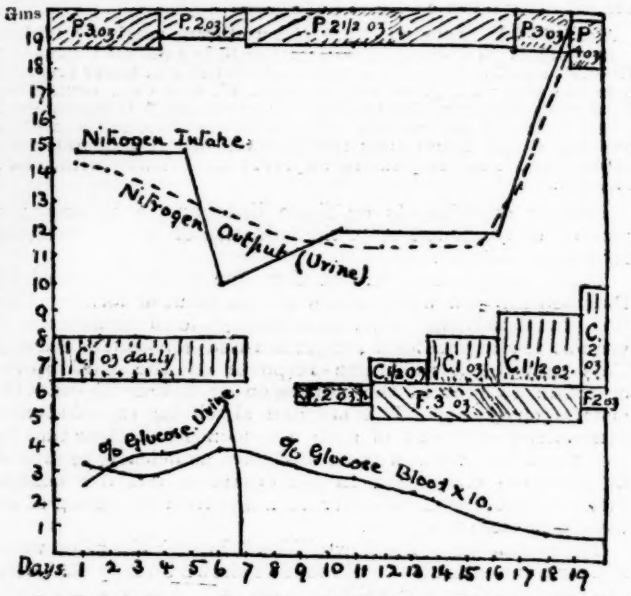
THE following table has been in use in both hospital and private practice for nearly twelve months; the results obtained have been so satisfactory that I venture to think that it may prove of value to others who have to undertake the dietetic management of various metabolic disorders.

Most food analyses are expressed in percentage values of carbohydrates, fats, proteins, water, and salts, the quantity of food itself being given a unitary or workable value. In clinical work, on the other hand, it is obvious that what is required is a unitary value for the specific carbohydrate, fat, or protein content, and with this end in view I was led to devise this simple table. The factors which determine the success and accuracy of any particular diet would appear to be the ease of original construction, an elasticity which allows, if necessary, of a daily change, and a small demand only on the time and intelligence of helpers and patients. This table has been found to meet these requirements, the only other essential being a small pair of scales. The specific contents have been worked out from the excellent tables given by Joslin[1] and Cammidge[2] and from other sources; the quantities are not strictly accurate, as the unit idea was kept mainly in mind, in view of the ordinary conditions under which patients arrange their own dietary. The scheme has been principally used in the dietetic management of chronic nephritis, diabetes mellitus, hyperchlorhydria, and achylia gastrica. In these conditions, where specific intolerance of carbohydrates, fats, proteins, or their derivatives is often manifested, a simple control of intake has been obtained by the use of this table; determinations of output or utilization have been made in the case of carbohydrates by glucose estimations in blood and urine, in the case of proteins by determination of urea in the blood and of total nitrogen and urea in the urine, and in the case of fats by the ordinary methods of detecting the onset or degree of acidosis. By these means it has been found that growth or loss of tolerance for carbohydrates and proteins is readily observed and that the onset of acidosis is easily controlled.

The following chart may serve to illustrate the simple method of prescribing food, quantities of which are shown daily; growth of tolerance for carbohydrate (without fasting or the use of "ladder" schemes) and maintenance of nitrogenous equilibrium are also clear. The case is one of a woman of 26 suffering from diabetes mellitus. Blood sugar

was estimated four hours after a meal, and nitrogen intake calculated as 16.5 per cent. of the protein intake; total nitrogen (T.N.) was determined by a modification of the Kjeldahl method.




C = Carbohydrate. F = Fat. P = Protein. Example: On the seventh day on a diet of 1 oz. of carbohydrate and 2 oz. of protein, glucose in urine stood at 6 per cent., in blood at 0.4 per cent., and the nitrogen output in the urine stood at 12.6 grams per diem.

The last section of the diet scale shows the calorie requirement of the particular patient per diem; it is made up according to age, occupation, or severity of disease, and is subject to revision as tolerance varies.

*Diet Scale.*

One ounce of carbohydrate or protein yields 120 calories. One ounce of fat yields 270 calories.

*One ounce of carbohydrate is contained in—*

1¼ oz. dry oatmeal (contain 1/3 oz. protein, 1/10 oz. fat).
1½ oz. shredded wheat biscuits (contain 1/2 oz. protein).
12 Kalari biscuits (Callard).
1 pint of milk (contains 2/3 oz. fat, 2/3 oz. protein).
1½ pints cream (contain 1 oz. protein, 6 oz. fat; rich cream contain 12 oz. fat).
5 oz. potatoes (contain 1/6 oz. protein).
5 oz. baked beans (contain 1/3 oz. protein, 1/10 oz. fat).
5 oz. boiled rice or macaroni.
1½ oz. bread or toast (contain 1/6 oz. protein).
10 oz. strawberries, lemons, or oranges.
10 oz. Brazil nuts (contain 1½ oz. protein, 7 oz. fat).
10 oz. filbert nuts (contain 1 oz. protein, 7 oz. fat).
10 oz. carrots or onions.
20 oz. grape fruit.
20 oz. ripe olives (contain 1/2 oz. protein, 5 oz. fat).
6 oz. apples, currants, pears, cherries, grapes.
5 oz. plums, bananas, or prunes.
20 oz. tomatoes or radishes.
20 oz. lettuce (contain 1/2 oz. protein).
1 pint beer.
1/2 pint stout.
1/2 pint port wine.
*Thrice*-cooked spinach, celery, or cabbage contains no carbohydrates; the carbohydrate in soy bean or mushrooms is *not* assimilated.

*One ounce of protein is contained in—*

10 oz. smoked uncooked bacon (contain 6 oz. fat).
6 oz. ordinary uncooked bacon (contain 3 oz. fat).
5 oz. lean smoked ham (contain 1 oz. fat).
5 oz. lean uncooked beef or mutton (contain 1/2 oz. fat).
4 oz. roasted lean beef or mutton (contain 1 oz. fat).
6½ oz. corned beef (contain 2 oz. fat).
5 oz. fresh fowl (contain 1½ oz. fat).
5 oz. boiled cod, haddock, sole, or whiting.
7 average sardines (contain 1 oz. fat).
2 large or 3 small hen's eggs (contain 1 oz. fat).
4 oz. cheese (contain 1½ oz. fat) (American, Cheddar, Cheshire).

*One ounce of fat is contained in—*

1½ oz. fresh butter.
1 oz. oleo margarine.
1 oz. lard, cod-liver oil, olive oil.

One ounce of whisky, brandy, rum, or gin yields 105 calories.

*Requirements:* Calories per day in the form of—
oz. carbohydrates.
oz. proteins.
oz. fat.

REFERENCES

[1] E. P. Joslin: *Diabetic Manual*, 1919. [2] P. Cammidge: *Glycosuria and Allied Conditions*, 1913.

# Memoranda:

## MEDICAL, SURGICAL, OBSTETRICAL.

### ADENO-CARCINOMA OF THE APPENDIX.

THE following report is of interest, as the case is probably the youngest of the kind to be recorded.

A boy, aged 14, was admitted to hospital complaining of abdominal pain, which had come on suddenly the previous night. It was at first referred to the umbilicus, and later to the right iliac region, and was unaccompanied by vomiting or constipation. He had had no similar attacks, and no other important illnesses. Tuberculosis had occurred in several members of the family (including a sister with peritonitis), but there was no family history of malignant disease.

On admission the temperature was 100.2°, the pulse 108, and the respirations 28. The tongue was furred, and the breath foul. The abdomen moved well with respiration; there was slight distension in the right iliac region, and tenderness over McBurney's point, just below which a cord-like thickening about 2 inches long was palpable. The rectus reflex was less marked on the right than on the left. The examination per rectum was negative.

The patient appeared fairly comfortable, and next morning presented no symptoms, though the tenderness and thickened cord in the right iliac fossa persisted; the tongue was cleaner, the bowels regular, and there was no vomiting. The patient was kept in bed on an ordinary light diet and watched for a week, but beyond an evening rise of temperature to 100°, the daily range being about 1.5°, there were no abnormal signs. A diagnosis of tuberculous appendix was made.

At operation the appendix was found to be 5 inches long, kinked, lying in the "4 o'clock" position, and bound down by adhesions. It showed signs of recent inflammation. On being removed and slit up along the lumen, which was patent, it was found to contain two small faecal concretions at the tip, and in the wall at the point where the kinking occurred were two small yellow masses, very hard, and cutting like an unripe pear.

The report received from Dr. Walker Hall of Bristol on the microscopical examination of the specimen is as follows:

"The condition present is an adeno-carcinoma. There are several small adjacent nodules, each of which represents the same structure. One of them, however, has extended more rapidly than the others, and has reached the peritoneal lymphatics."

The patient made an uneventful recovery, the wound healing by first intention; and when last seen (six weeks after operation) appeared very well. There is a clean, smooth scar, and nothing abnormal palpable per abdomen.

I am indebted to Dr. W. Thompson for permission to publish these notes.

The Hospital, Bridgwater. A. O'DWYER THOMAS.

### EBONITE POISONING.

IN view of the great vogue of amateur "wireless" building and entertaining, the following case may be interesting. So far I have not seen any reports of cases due to work on making "wireless" receiving sets, though it would seem that such cases may shortly become more numerous. The disease referred to is simple ebonite poisoning, and occurred in one of my panel patients a short time ago.

The patient is employed in the room of a factory where the ebonite plates are cut, ground, and bored for holding the parts of amateurs' receiving sets. After a week's work in this room, although he did very little ebonite grinding himself, symptoms of an irritant enteritis occurred—namely, nausea, vomiting, giddiness, headache, diarrhoea, and abdominal cramps. The attack was not very severe and once the patient left work yielded in a few days to treatment by copious drinks of lemonade, milk, or barley water, stimulants in moderation, and light (milk) diet, with saline aperient thrice daily.

My patient stated that three other men employed in the same room had had similar, but more severe, symptoms, and had had to be absent from work a few days before he himself was attacked. His employers appear to have agreed that the source of the trouble was ebonite dust, as he understood that they had already made arrangements for hoods and suction-ventilating fans to be fixed on the grinding benches. The workers are also encouraged to drink large quantities of milk, and to be scrupulous in washing their hands. These measures, and prevention of eating in workrooms, should prove sufficient to prevent further trouble in these factories.

M. W. GEFFEN,
M.R.C.S., L.R.C.P., D.P.H.

London, W.

## RUPTURE OF THE SPLEEN.

RUPTURE of the spleen is not very common, and in public school boys must be a very rare event. The following case is of interest, in that the original injury damaged the spleen, but rupture did not take place till eight days later, following on slight exertion.

A boy, aged 15½, was kneed in the abdomen at football on February 8th. He was able to walk back to the school sick-house, when he vomited freely (dark-brown matter) and became collapsed. There was considerable tenderness in the epigastrium, just to the left of the middle line; his condition steadily improved from hour to hour; there was no blood in the urine or stools, and I came to the conclusion that probably no abdominal organ was injured but that the solar plexus had been affected. Beyond slight epigastric tenderness for a couple of days he had no further symptoms, and was discharged on the evening of February 13th to school with leave off all exercise.

On the morning of February 16th, instead of reporting to me, he played squash rackets after breakfast, and in a few minutes felt acute pain, vomited, and had to be carried into the sick-house in a state of collapse, with acute abdominal pain and slight muscular rigidity on the left side. In consultation with Dr. Lawson Smith we agreed that there was probably some internal haemorrhage; Mr. H. W. Carson came down at once and the patient was operated on within three and a half hours.

*The Operation: Note by Mr. Carson.*

I agreed with Dr. Lempriere and Dr. Lawson Smith that the patient was suffering from internal haemorrhage, and I operated at once, opening the abdomen through the left upper rectus sheath, displacing the muscle inwards. This did not give good exposure, and was supplemented by a transverse incision backwards into the loin from the middle of the vertical incision. There was a quantity of blood and clots in the abdomen. The spleen was found to be torn on its inner surface, but the bleeding was coming from within the hilum. A nodule was felt in the pedicle just at its attachment to the spleen, which may have been a haematoma from the first injury. There was no old blood clot, which confirmed the opinion that internal haemorrhage had not occurred as the result of the first injury. Removal of the spleen was decided upon, but it was made difficult by the shortness of its ligaments. The pedicle, too, was short and contained the tail of the pancreas.

Beyond troublesome post-anaesthetic vomiting (he was two and a half hours on the table) there was no drawback, and he went home to convalesce on March 14th.

A specimen of his blood was sent a fortnight after the injury to Dr. C. H. Andrewes of St. Bartholomew's Hospital, who reported that there were no changes from the normal.

L. R. LEMPRIERE,
Medical Officer, Haileybury College.

# Reports of Societies.

## RADIOLOGY IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS.

A MEETING of the Royal Medico-Chirurgical Society of Glasgow was held on April 6th, when a number of communications were made on the diagnosis of pulmonary tuberculosis, with special reference to radiology.

Dr. LEONARD FINDLAY, whose remarks referred particularly to the disease in the young, said that his conclusions were based upon clinical, radiological, and pathological examinations, and that meticulous care had been taken in the matter of diagnosis. He believed that in the period of life before puberty tuberculosis of the lung was a disease of infancy and early childhood, and that it ran an acute or subacute course. In an older child a pulmonary lesion, and especially a chronic pulmonary lesion, should be diagnosed as of a tuberculous nature only with the greatest hesitation and in the presence of the utmost proof. Charts were shown in support of this opinion. Dr. Findlay also pointed out that pulmonary tuberculosis, unless in the very young infant, was seldom, if ever, limited to one lung or one lobe of the lung.

Dr. D. CAMPBELL SUTTIE showed radiograms of cases of pulmonary tuberculosis, and said that admittedly recognizable *x*-ray appearances had a definite value in the face of negative clinical findings, and negative *x*-ray appearances had no claim for consideration when clinical signs were undoubtedly present; there were pathological conditions which in their early stage were undetectable by either—for example, miliary tuberculosis. Certain pathological conditions were shown, he said, by radiograms, before clinical signs or symptoms appeared, and also after clinical signs and symptoms had disappeared. Certain pathological conditions, on the other hand, were detected by the clinician before *x*-ray appearances were present.

Dr. A. S. M. MACGREGOR introduced the subject from the public health point of view, and referred to the work done by Drs. Wilson, Henderson, and himself in correlating clinical and radiological features in special groups of cases. Some of the earlier ideas as to the nature of apparent abnormalities in radiograms had had to be discarded, and he pointed out that radiographic appearances varied within wide limits in normal chests. In regard to the routine diagnosis of lung conditions, perhaps the most important aspect of radiology was the aid it gave in a negative sense in doubtful cases; in this respect the right apex was a constant stumbling-block. Radiology was also of value in many cases of chronic bronchitis where the symptoms suggested a coexistent tuberculosis. *X* rays often detected hidden, unsuspected, and otherwise undiagnosable lesions.

Dr. J. A. WILSON said that if the cases notified as pulmonary tuberculosis in a district of Glasgow were analysed it would be found that the error in diagnosis, in the best year, was about 33 per cent. For the past three years efforts had been made to evolve a scheme to deal with the increasing number of notifications of cases which were doubtfully tuberculous. While it was too early to dogmatize, the conclusions arrived at, as a result of the combination of careful *x*-ray and clinical work, were that (1) cases of tuberculosis of the lung had a definite radiological picture; (2) hilus tuberculosis was an uncommon disease; (3) basal lesions were, as a rule, non-tuberculous, the exceptions being those secondary to a chronic tuberculous infection of the abdomen; (4) there might be physical signs of moderately extensive infection of the respiratory tract with no radiological counterpart—such infections were non-tuberculous.

Dr. FERGUS L. HENDERSON gave a demonstration of radiograms illustrating points in diagnosis.

## PROLAPSE OF THE UTERUS.

AT a meeting of the Aberdeen Medico-Chirurgical Society held on April 5th, with the President, Dr. ALEXANDER OGSTON, in the chair, a lantern demonstration on pelvic hernia (prolapsus uteri) was given by Mr. ALEXANDER and Mr. VICTOR DON. The anatomy of the pelvic floor was demonstrated, and the authors pointed out that the real support was formed by the levators, coccygei, etc., and their coverings, the true fascia of the muscles. Sections of the pelvis showed the sub-peritoneal tissues impregnated with fat, with no definite ligamentous bands. The physiology affecting the abdomino-pelvic pressure was explained, showing that gravity had little to do with prolapse, or the so-called ligaments with retention of organs, the onus being entirely on the pelvic muscles and their fascial coverings. A new operation, founded on the methods which had proved successful in dealing with herniae elsewhere, was demonstrated, the edges of the levators being brought together and their fascial coverings overlapped, or, if these were found much scarred or thinned, a piece of fascia lata from the thigh was introduced to strengthen the support. Operations which depended on the suturing of connective tissues only were condemned as unreliable. The authors said that they had not yet had sufficient experience of the results, but the operation was stated to be comparatively simple and safe, and healing was ensured by gentle handling of the tissues. The demonstration was followed by a discussion.

A MEETING of the London Association of the Medical Women's Federation was held at the Elizabeth Garrett Anderson Hospital on April 10th, with Dr. LOUISA MARTINDALE in the chair. Miss IDA C. MANN read a paper on some congenital defects of the eye and their confusion with acquired conditions. She described many congenital defects of the fundus, of the iris, the cornea, and the lids, but confined her attention to those defects which had to be diagnosed from acquired pathological conditions presenting very similar appearances. Her paper was illustrated by a series of drawings in colour. Miss ROSA FORD read a paper on a case of intracranial tumour, diagnosed by the visual defects produced. The diagnosis both of the presence and the site of the tumour in this case rested mainly on the detection of an increasing contraction of the visual fields, especially with regard to colour vision, and associated with papill-oedema. The tumour was located in the occipital region. Mr. Percy Sargent operated on the case at the National Hospital, Queen Square, and successfully removed an endothelioma from the occipital lobe.

# Reviews.

## THE PHYSIOLOGY OF REPRODUCTION.

CONSIDERING the very common and not unnatural curiosity which exists in regard to questions relating to reproduction, it is remarkable that so few books have been devoted to the subject by human physiologists. Probably no class of medical practitioner gets less encouragement to seek for information in physiological textbooks than the obstetrician or gynaecologist. In the ordinary textbooks of physiology the subjects in which he is particularly interested are usually dismissed in one or two chapters dealing in a superficial way with the male and female reproductive organs; for anything like a full description of the functions of these organs he is thrown back upon textbooks of midwifery or gynaecology. It is not sufficient explanation of this curious lack that few if any individual physiologists are in a position to write a textbook on reproduction. It is indeed true that the author of such a book has to be a biologist, a biochemist, an embryologist, a histologist, and in some degree an agriculturist and even a veterinarian. With great advantage he might also be an obstetrician and a gynaecologist. But we have known physiologists tackle problems and write books upon subjects in which as wide and varied a range of knowledge was really required for complete mastery of the subject.

It is now thirteen years since Dr. F. H. A. MARSHALL'S *The Physiology of Reproduction* appeared to remove in some measure this reproach from physiology and to fill in very large measure the gap in our scientific literature to which we have just referred. For some years the first edition has been out of print and many readers will be glad to know that a second edition has been produced.[1] Dr. Marshall does not profess to be *in propria persona* the scientific Proteus we have just described as the ideal editor of such a textbook, but he has, as the next best thing, elicited the help of various specialists, and has himself presided over the editing of their contributions. Thus Dr. William Cramer has again contributed the sections upon the biochemistry of the sexual organs, a subject on which he has made himself a recognized authority, and he has also revised the section on changes in the maternal organism during pregnancy originally written for the first edition by Dr. James Lochhead. Dr. Lochhead's other contribution to the first edition, the chapter on foetal nutrition and the physiology of the placenta, has been reprinted practically as it stood; only slight additions, chiefly in the form of footnotes, for which Dr. Marshall is responsible, have been made. It is to be regretted that Dr. Lochhead's duties at Gibraltar have prevented his revising his earlier work, and in our opinion the book suffers in some degree from the lack of adequate revision of these chapters. Several omissions occur which it is unnecessary to specify in detail, but we may mention the work carried out by Slemons and his colleagues in the Johns Hopkins Hospital and embodied in his oration at Toronto in 1919. Dr. Cresswell Shearer has written in this edition a most excellent chapter on fertilization, in which he includes a description of the oxidation processes occurring in the egg on and after fertilization. He also gives a short but lucid account of Child's brilliant, suggestive, and far-reaching work on the life cycle. For the remaining chapters Dr. Marshall is himself responsible.

This edition undoubtedly maintains the high reputation acquired by its predecessor, and the book taken as a whole remains the most comprehensive and authoritative treatise on the general aspects of the subject in the English language. Particularly is this the case with regard to all questions of "comparative" and of what is sometimes called "pure" as opposed to "applied" physiology. The value of the book would, however, be enhanced by a more consistent endeavour to link up these "purely" physiological matters with the practical and clinical considerations associated with obstetrics and gynaecology in the human subject. This might have been done by associating an obstetrician and gynaecologist in the preparation of the book. None of the medical contributors to the present edition would appear to have the special experience of the processes of reproduction in the human subject which in its normal and in its abnormal aspects falls to the lot of an obstetrical and gynaecological specialist, and the result is that the sections dealing with the human subject lack the ring of authority and personal knowledge which characterizes the rest of the writing. There are also omissions, and in some instances the quotations from obstetric textbooks are either out of date or imperfectly assimilated. We note, for example, that some important work on the cause of menstruation by various gynaecologists receives scant, if any, attention. Menstruation is to a great extent—indeed to a possibly disproportionate extent—regarded from the standpoint of comparative physiology. There is little or no reference to much of the later work embodied in Novak's recent monograph. The same criticism applies also to the discussion of the question as to the time relationship between ovulation and menstruation. It is quite true that observations on the human subject are not so easy to make or to control as similar observations on the lower animals, but their importance is, *ceteris paribus*, much greater. That obscure subject, the cause of the onset of labour, is rather briefly dismissed, and the view that it is due to a stimulus arising in the pituitary gland is not considered. The section on prolonged gestation hardly seems adequate from the point of view either of veterinary experience or of the observations of obstetricians. That most interesting question, the determination of sex, is, however, very fully and most excellently discussed, and all the latest work on the subject has been summarized. The section upon sterility in females is disappointing, and once again shows the need of collaboration with someone who is familiar with gynaecological literature.

Such disappointment as the above criticisms indicate is really a compliment, even though rather "back-handed," to Dr. Marshall's book. Its great merits stimulate our expectations to a perhaps unreasonable extent. We would, however, earnestly commend to Dr. Marshall the project of elaborating the book along the lines suggested, and so making it in future editions even more the veritable authoritative and comprehensive work which it already very nearly is. Such a treatise as we contemplate might attain double the size of the present volume, but its value would be more than doubled to medical scientists, and it would form an even more noble contribution to British scientific literature than the volume under review.

[1] *The Physiology of Reproduction*. By Francis H. A. Marshall, Sc.D. Camb., D.Sc.Edin., F.R.S. Second and revised edition. London and New York: Longmans, Green, and Co. 1922. (Roy. 8vo, pp. 770; 189 figures. 36s. net.)

## THE PREPARATION OF PATIENTS FOR OPERATION.

THERE are several good books on the after-treatment of operation cases, but it has occurred to Dr. CHARLES LEFEBVRE of Toulouse to write a volume[2] on the treatment of patients in the period whilst they are awaiting operation. Such a book would seem to fill an unoccupied niche in medical literature, but the successful accomplishment of the task is much more difficult than at first appears. The general preparation of patients is to-day more or less standardized, and for special operations, or rather for operations on special organs, surgeons are already in the habit of attending to certain points in order to have their patients in the best possible condition. This is seen to best advantage perhaps in urological cases, and particularly in operations upon the prostate, where within the last few years very great progress has been made and results certainly improved. Every operator is further aware of the advantages of attention to the mouth in abdominal cases, and no one will deny that gastric lavage and the giving of fluids by other channels than by the mouth have a beneficial effect on dehydrated sufferers from pyloric stenosis. Recently the Mayos have demonstrated the value of the pre-operative estimations of hepatic function and of blood-coagulation time in chronic biliary stasis, and attempts have been made in Harvey Cushing's clinic to reduce intracranial tension in tumour cases by giving hypertonic solution intravenously or by the mouth. All of these straws (if we may attach so insignificant a word to such important happenings) show which way the wind is blowing. Surgeons most assuredly are taking infinitely more pains to ensure the success of their operations. The enucleation of a prostate or the removal of a stone from the common duct is no longer the *tour de force* that once it was, sufficient in itself and awe-inspiring in the beholder. To-day we demand, and not unreasonably, a living patient at the end of it all.

It is to further this excellent tendency that Dr. Lefebvre has written his little book. It is prefaced by an extract from

[2] *La Période Pré-opératoire*. By Charles Lefebvre, Chief of the Surgical Clinic of the Faculty of Toulouse. Paris: A. Maloine et Fils. 1922. (Post 8vo, pp. 260; 9 figures. Fr. 10.)

J. L. Faure which is worth quotation because it shows also a modern revival, and that is the declaration of reverence with which many surgeons regard their work. This attitude was once, we think, rather the right of the physician, and the passing of it to the surgeon as well is not something more lost by the former to the latter, but something which medicine as a whole must welcome and in which it must rejoice. Faure says:

"And surgery to-day is truly the *res sacra* of ancient times, the sacred thing which one must approach with fear and speak of with respect as a goddess who holds in her sovereign hand the life and death of those who sacrifice at her altar."

The scope of Dr. Lefebvre's book is wide and would have been better had he confined himself to fewer subjects. A series of more or less disjointed chapters or essays would better have fulfilled his purpose. We find ourselves but little interested in general dissertations on the preparation of tuberculous, syphilitic, malarial, and gouty patients, and of drug takers. And yet these subjects are not without their interest, so that perhaps our lack of sympathy is the fault of the author. An interesting section is furnished on diabetics as possible subjects for operation, and we are glad to see that obesity receives attention. There is no doubt whatever that the obese patient is anything but a first-class operative risk, and most surgeons of experience have learned to regard him with considerable apprehension. The author has some sane suggestions to make on the improvement in the general hygiene of this class. The dangers of subsequent fat embolism might have received more attention. Nor has the author referred to the special studies of which we have made mention above.

In one thing we can whole-heartedly agree with Dr. Lefebvre, and that is his condemnation of pre-operative purgation. He quotes again the excellent J. L. Faure, and we will transcribe the extract in full:

"For a very long time I did what I had always seen my masters do, and I purged my patients conscientiously on the eve of operation. Then I asked myself why we purged them thus, and I thought that it was without doubt because our masters purged them. I also thought that if our masters purged them it was because they had seen their masters do it. So that finally I arrived at this conclusion, that if to-day we purge our patients on the eve of operation it is really because Dupuytren purged them."

Some three years ago the question was discussed in a leading article in this JOURNAL (1919, vol. ii, p. 570), and recently the opinions of a number of surgeons were collected in a short article published in our issue of March 17th (p. 476).

## URETHROSCOPY.

*The Urethra and the Urethroscope*,[3] by Dr. F. CARMINOW DOBLE, gives an account not only of the various models of urethroscopes in use, but also of their method of employment. The author asserts that although many textbooks on the subject of venereal disease, and of gonorrhoea in particular, have appeared within recent years, but scant attention has been paid in them to the subject of urethroscopy. His book is intended to be used as an adjunct to general textbooks of treatment, and its aim is to be, above all things, a thoroughly practical guide to urethroscopy. With the opening of large numbers of venereal clinics throughout the country many medical men who have perhaps no previous knowledge of urethroscopy find themselves in the position of having to diagnose and treat urethral conditions. Although a practical demonstration must always be a better method of education than that afforded by textbooks and manuals, it is not always possible for those who wish to learn the rudiments of urethroscopy to visit clinics where urethroscopy is habitually carried out.

The book is divided into three parts: the first deals with anterior urethroscopes and the examination of the anterior urethra, the second with posterior urethroscopes and posterior urethroscopy, and the third with the examination of the female urethra. All the principal urethroscopes of British manufacture are included, as well as a few of the better known Continental models. The descriptions are made more easy of comprehension by excellent plates, and the good points and deficiencies of each type of urethroscope are noted in turn. Dr. Doble would appear to have used all these instruments, but he does not state his personal preference. He has himself been responsible for an addition to the Holborn Surgical Instrument Company's anterior urethroscope, which allows of it to be used for posterior urethroscopy. In spite of the absence of water dilatation, Dr. Doble has found that this instrument gives him a very satisfactory view of the posterior urethra. The commoner pathological conditions of both the anterior and the posterior urethra are described as tersely as possible, as are also the procedures best calculated to remedy them. Although anyone who reads Dr. Doble's book must agree with most of what he writes, some will wonder whether urethroscopic methods of treatment are as important or as successful in the cure of gonorrhoea as he would lead us to believe. However, even although these doubts may obtrude themselves on the attention of the reader, he will in the end be forced to admit that no one can pretend to treat gonorrhoea successfully unless he has made himself an expert in urethroscopy. Even if intraurethroscopic surgery be limited in its scope, there can be no doubt that the urethroscope, regarded solely as a means of deciding what measures shall be adopted, is a therapeutic weapon of the very greatest importance. To those who wish a complete, practical, and on the whole an unbiased explanation of the subject, we recommend his book.

[3] *The Urethra and the Urethroscope*. By F. Carminow Doble, M.R.C.S., L.R.C.P.Lond. Oxford Medical Publications. London: H. Frowde, and Hodder and Stoughton. 1923. (Demy 8vo, pp. x + 120; 45 figures. 10s. 6d. net.)

## GREEK BIOLOGY AND MEDICINE.

DR. H. O. TAYLOR'S pleasantly written book, *Greek Biology and Medicine*,[4] which forms the third volume in the American Library of *Our Debt to Greece and Rome*, though intended for laymen and not professing to compete with more elaborate works on this subject, will yet be read with advantage by most medical men. It shows how the scientific spirit of Greek biology and medicine still influences modern intellectual activity, and that it is the method rather than the substance of Greek science that constitutes our debt. In an interesting chapter entitled "The Hippocratics" the principles rather than the details of the Father of Medicine's practice are described, and it is said that ethically the most influential document in the history of medicine is the famous Hippocratic oath. The most notable hypotheses of the Hippocratics were the four humours, the natural origin of disease, and the *vis medicatrix naturae*. A certain amount of hypothesis entered into the Hippocratic art of healing, as it necessarily does into every art and science, but Hippocrates was sparing in hypotheses, as few men after him were, and always introduced them with extreme conscientiousness.

In the account of Aristotle's biology this greatest of Greek biologists, and almost the greatest of Greek philosophers, is described as not only a pioneer of natural science but as correlating the processes of nature with the *how* and the *why* of living things.

In the chapter on the progress in anatomy and medicine the Alexandrian school and the influence of Herophilus and of Erasistratus are sketched. This is followed by a critical and specially attractive account of the final development of Greek medicine and biology by Galen, whose work was a constructive synthesis amalgamating the Hippocratic and Aristotelian traditions with his own observations. In the final chapter the linkage with modern medicine is considered; the influence of Aristotle on Harvey is discussed, and it is seen how Sydenham turned away from the chemical and mechanical hypotheses of disease to follow the principle of independent observation set up by Hippocrates. Both in name and matter this book recalls the recent publications of Dr. Charles Singer, to whom Dr. Taylor makes full acknowledgement.

[4] *Greek Biology and Medicine*. By Henry Osborn Taylor. *Our Debt to Greece and Rome*. Editors, G. D. Hadzsits, Ph.D., and D. M. Robinson, Ph.D., LL.D. London, Calcutta, Sydney: George G. Harrap and Co., Ltd. 1923. (Cr. 8vo, pp. xv + 151. 5s. net.)

## PNEUMOCOCCIC INFECTIONS.

IN *Pneumocoques et affections pneumococciques*,[5] a monograph from the Pasteur Institute, Drs. COTONI, TRUCHE, and Mlle RAPHAEL give a comprehensive account of the pneumococcus, its bacteriology and serology, the infections it produces, and their specific treatment. The volume contains the results of much original work begun as long ago as 1908 under the supervision of Professor Maurice Nicolle, to whom this monograph is dedicated; but it contains also full references to the

[5] *Pneumocoques et affections pneumococciques*. Par L. Cotoni, C. Truche et Mlle A. Raphael. Monographies de l'Institut Pasteur. Paris: Masson et Cie. 1922. (Med. 8vo, pp. 275; 27 figures, 41 temperature charts. Fr. 24.)

researches of other workers, such as Douchez, Avery, R. Cole, Theobald Smith, Washbourn, and F. S. Lister, and there is a useful bibliography with 270 entries. The relation of the enterococcus and the *Streptococcus mucosus capsulatus* to the pneumococcus group is discussed, and the groups of pneumococci are described, the classification made by Nicolle and Debains being adopted. The preparation and properties of antipneumococcic serum are considered, and contrary to the views of the American workers the authors do not insist on the use of a typed serum, but prefer a serum possessing the most active powers against the pneumococcus. Intravenous injection is preferred to the hypodermic administration of the serum.

The crisis in pneumonia is fully dealt with, both from its clinical side and from the interesting point of view of its mechanism. The clinical features are thus correlated with the changes that are taking place in the blood. The exacerbation of the symptoms immediately before the crisis coincides with a maximum accumulation of pneumococcic poison, and in response to this emergency the body discharges into the blood lytic antibodies which attack the albuminous pneumococcic poisons, thus causing a secondary intoxication, so that the crisis is regarded as a phenomenon of hypersensitiveness. As a result of this anaphylactic reaction great vaso-dilatation of the intestinal and peripheral vessels and fall of blood pressure, leucopenia sweating, diarrhoea, and polyuria follow. The return of chlorides to the urine may be explained by their previous fixation to the pneumococcic toxins. Although the presence of pneumococci in the blood makes the prognosis worse—and here it is noted how much more often blood cultures are positive in blacks than in whites—there is, it is held, no real pneumococcic septicaemia in these cases, for the pneumococci are merely on their way to set up potential metastases. The section on preventive vaccination contains many statistics from the war experience. This valuable monograph concludes with a short account of chemotherapy in which the danger that optochin may cause amblyopia is mentioned.

## A FRENCH TEXTBOOK OF MEDICINE.

THE title of Dr. JOURNÉ's book, *Précis de Pathologie Médicale*,[6] is, for the English reader at any rate, doubly misleading. It suggests in the first place that the book is a small one, whereas in reality it contains over 1,200 closely printed pages, uninterrupted by either illustrations or diagrams; and in the second place it gives the impression that the book deals mainly with pathology, which it does not. It deals with medicine; it is a textbook of medicine, and would far more suitably be called so. In aim, outline, and general treatment it resembles the usual standard works, differing from them, however, in being rather more comprehensive in some ways—for example, in the inclusion of mental diseases—and rather less so in others, omitting for the most part the references to the history of disease, and spending less space on treatment. It contains an immense amount of information, mostly of a highly exact nature. It is true that some statements are rather dogmatic, such as those dealing with d'Herelle's bacteriophage, the pathology of cerebro-spinal fever, and the therapeutic value of antitetanic serum; others are not sufficiently comprehensive, as in Dr. Journé's omission of Flexner's bacillus from the etiology of bacillary dysentery, and in the somewhat inexact account of the life history of *Bilharzia haematobium*. But, on the whole, there is very little to which exception can be taken. On some subjects it is remarkably good; functional diseases of the kidneys, Widal's work on haemoclasia, colloidoclasia, hepatic insufficiency, herpes, and kindred conditions to which the French have recently been devoting themselves are well summarized.

The book has, in fact, a very distinct French stamp upon it, and it is partly for this reason that it is so attractive. To the post-graduate, to the aspirant to higher medical degrees, and to the young consulting physician, we would highly recommend it, and shall be surprised if its clear, terse sentences, its fascinating descriptions, and its wealth of information do not appeal to all who wish to step aside from the older and more weather-beaten volumes of their own country.

[6] *Précis de Pathologie Médicale*. By M. Journé. Paris: A. Maloine et Fils. 1923. (Imp. 16mo. pp. 1269. Fr. 25.)

## CARRIERS.

ALTHOUGH there is considerable difference of opinion as to the importance of "carriers" in spreading disease, no one will deny the need for further inquiry and research in this mode of transmission. In *Carriers in Infectious Disease*[7] Dr. HENRY J. NICHOLS renders great assistance in such an inquiry. He defines a carrier as an individual who harbours and transmits pathogenic parasites without showing the usual evidences of infection, and he classifies carriers as true carriers, where the parasites are pathogenic and virulent; pseudo-carriers, where they are non-pathogenic and non-virulent; and possible carriers, which include those cases in which the organisms are of uncertain significance. On the treatment of carriers Dr. Nichols has not much to say that is new. The chronic diphtheria carrier is the despair of the public health officer, especially where there are no facilities for obtaining a virulence test; patients are frequently kept in hospital or otherwise isolated for very many weeks because successive cultivations of material taken from throat or nose reveal the presence of diphtheria bacilli. When the throat is affected removal of the tonsils is recommended, but no definite advice is given with regard to nasal carriers. For the treatment of persistent typhoid or cholera carriers surgical interference is suggested, though it is known that it does not invariably meet with the success which might be expected. A plea is put forward for an organized search for carriers. Contacts with known cases of disease, as well as those persons known as food handlers, should, in the author's opinion, as a routine measure be subjected to examination which would include a search for diphtheria bacilli from the throat and nose, haemolytic streptococci from the tonsil, meningococci from the nasopharynx, pneumococci from the saliva, typhoid bacilli from the faeces and urine, and the organisms of cholera and dysentery from the faeces.

The value of the book is increased by the inclusion of a section on carriers in veterinary medicine by Captain R. A. Kelser of the Veterinary Corps, U.S. Army. He divides animal carriers into three groups. The first includes carriers of organisms which are pathogenic for man as well as for the lower animals; the second deals with carriers of organisms which are pathogenic for lower animals and may possibly prove pathogenic for man under certain circumstances; and the third group includes carriers of organisms pathogenic for animals only.

Although no new ground has been opened by the authors of this volume they have succeeded in giving a clear exposition of the carrier question as it is known at present.

## NOTES ON BOOKS.

WHEN the war broke out in 1914 the Division of Economics and History of the Carnegie Endowment for International Peace turned its attention to the economic problems of war. Incidental studies and surveys of portions of the field were made, but during hostilities it was, for obvious reasons, impossible to undertake the general history. By the summer of 1919, however, the Endowment was able to take up the plan for an economic and social history of the world war. One of the first steps was to set up an editorial board in each of the larger countries and nominate special editors in the smaller ones. After weighing various proposals a series of monographs was projected, consisting for the most part of unofficial yet authoritative statements, descriptive or historical, "about halfway between memoirs and blue books"; besides these a number of studies by specialists are in preparation dealing with technical or limited subjects, historical or statistical. Among the British series of volumes already issued is the *Bibliographical Survey of Contemporary Sources*, compiled by Miss M. E. BULKLEY.[8] This large and well produced book of 650 double-columned pages is put forward as a tentative survey of British literature dealing with the economic and social history of the United Kingdom during the war and reconstruction periods. The list is primarily one of Government publications. In addition some thirty or forty periodicals (including the two principal

[7] *Carriers in Infectious Disease; A Manual on the Importance, Pathology, Diagnosis, and Treatment of Human Carriers.* By Henry J. Nichols, M.D., M.A., Major Medical Corps, U.S. Army. With a section on Carriers in Veterinary Medicine, by R. A. Kelser, D.V.M., M.A., Captain Veterinary Corps, U.S. Army. Baltimore: Williams and Wilkins Company. 1922. (Med 8vo, pp. 184; 11 figures. 3.50 dollars.)

[8] *Bibliographical Survey of Contemporary Sources for the Economic and Social History of the War.* By M. E. Bulkley, B.A., B.Sc. Oxford: Clarendon Press; London and New York: Humphrey Milford. 1922. (Roy. 8vo, pp. xix + 648. Price not stated.)

medical journals) were consulted in order that important articles bearing upon the subject might be noted. Students of sociology and economics will no doubt find this compilation valuable for reference.

*The Principles and Practice of X-ray Technic for Diagnosis*[9] is the title of a book compiled by Dr. JOHN A. METZGER of Los Angeles, as a guide to students and operators in obtaining good *x*-ray results. There is a short chapter on apparatus, tubes, and the *x*-ray laboratory, but the main part of the book deals with the standardized positions for the radiography of the various parts of the human body. Each part is dealt with separately, and a photographic illustration shows the patient, tube, and plate in the position the author recommends as giving the best result. Then, after explanatory notes, a short paragraph gives the exact details of diaphragm, filter, distance, milliamperage, spark-gap, exposure, etc., with an interrupterless transformer and a Coolidge tube. It should, however, be noted that all the positions are equally applicable to the use of coil and gas tubes. The chapters on stereoscopy and localization are short and do not go much into detail. The Sweet-Brown method for the localization of foreign bodies in the eye is sufficiently described and illustrated. There is a useful chapter on dental and oral radiography in which again numerous illustrations add to the value of the text. The final chapter is on the developing room appliances and the technique of development, in which all the most important points are stated. There is not much, if anything, which is new in this book, but students of radiology and those who have not much experience or expert knowledge should find it useful.

Under the title of *Medizinisches Vademekum*[10] Miss B. LEWIS, who is a teacher of medical German in Vienna, has edited a series of handbooks in German and English, of which we have received volumes dealing respectively with *Otology*, *Rhino-Laryngology*, and *Ophthalmology*. Each book has first a number of clinical lectures by various Viennese authorities on the different subjects, then a number of anatomical illustrations, followed by verbatim reports of clinical examinations of patients and directions during operations, with lists of instruments, etc., printed in German and in English on facing pages. The volumes we have seen are calculated to be very useful to British medical practitioners who may desire to visit the special clinics in German-speaking countries, by giving them a large vocabulary of modern German medical terms.

The important book on *Orthopedic Surgery*, by Sir Robert Jones of Liverpool and Professor Robert W. Lovett of Harvard, reviewed in our columns last week (p. 634), has now been issued in London as an Oxford Medical Publication by Henry Frowde and Hodder and Stoughton, price 42s. net.

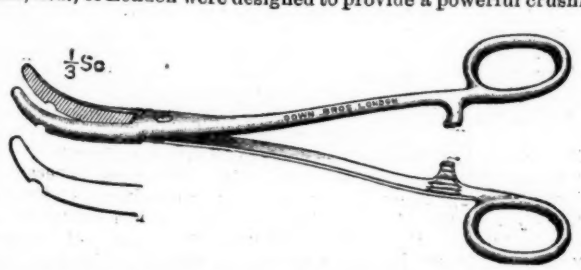
[9] *The Principles and Practice of X-ray Technic for Diagnosis.* By John A. Metzger, M.D. London: Henry Kimpton. 1922. (Roy. 8vo, pp. 144; 61 figures. 14s. net.)

[10] *Medizinisches Vademekum in deutscher und englischer Sprache.* Von B. Lewis. I, *Für Ohrenärzte* (pp. xiv + 205); II, *Für Nasen- und Halsärzte* (pp. viii + 215); III, *Für Augenärzte* (pp. viii + 247). London: H. K. Lewis and Co., Ltd.; Vienna: B. Lewis. 1922. (Med. 8vo, illustrated. 12s. 6d. each volume.)

## MEDICAL AND SURGICAL APPLIANCES.

*Pedicle Forceps for Nephrectomy.*

MR. HENRY WADE, C.M.G., D.S.O. (Edinburgh), writes: The pedicle forceps for nephrectomy made for me by Messrs. Down Bros., Ltd., of London were designed to provide a powerful crushing




haemostat which could be conveniently applied to the blood vessels of the renal pedicle and simplify the subsequent ligation of them. The blades are powerful, broad, and serrated, and have on their convexity a notch which facilitates transfixing the pedicle without the risk of having haemorrhage from puncturing a vessel. The blades are curved, which renders easier the passage of the loop of the ligature over the point when it is being tightened. I have found them a convenient and useful instrument.

## HOSPITAL PROVISION FOR DISABLED WAR VETERANS.

AN AMERICAN REPORT.

ON October 6th, 1917, Congress by Amendment to Public Act 193 of September 2nd, 1914, provided for the "hospitalization" of disabled veterans of the war into which the United States of America had recently entered. The amendment provided that the United States should furnish the injured person with

"such reasonable governmental medical, surgical, and hospital services and with such supplies, including artificial limbs, trusses, and similar appliances, as the director may determine to be useful and reasonably necessary."

*Congress and the Care of Ex-Service Men.*

In March, 1919, Public Act 326 authorized the Secretary of the Treasury to provide immediate additional hospital and sanatorium facilities for the care and treatment of certain persons employed at sea and in various Government services in addition to soldiers and sailors, thus augmenting the provision at the disposal of the United States Public Health Service. The method employed by Congress to meet this particular hospital problem was through lump-sum appropriations to the Public Health Service, providing for the maintenance of patients in existing institutions, and the maintenance of Public Health institutions themselves. Much of this expenditure was economically unsound because it provided expensive and unsatisfactory facilities of no permanent value. In June, 1920, the maintenance appropriation for the care of disabled men was transferred from the Public Health Service to the Bureau of War Risk Insurance, and thereby it became possible for the latter body to utilize other facilities for the maintenance of beds in addition to those of the Public Health Service. But these facilities were still inadequate, and on March 4th, 1921, Public Act 384 was passed "providing additional hospital facilities for patients of the Bureau of War Risk Insurance and of the Federal Board for Vocational Education, Division of Rehabilitation, and for other purposes."

*Appointment of Expert Advisers.*

The duty of carrying out the provisions of this Act devolved on the new Secretary of the Treasury, the Hon. A. W. Mellon, who appointed a small advisory board of Consultants on Hospitalization; and it is from their report, which has just been issued,* that we have summarized the early history of hospital provision for ex-service men in the United States.

The consultants appointed were Dr. William Charles White, formerly professor of neuro-pathology, and now medical director of the Tuberculosis League Hospital in Pittsburgh, Pa.; Dr. Frank Billings, dean of the faculty of Rush Medical College; Dr. John E. Bowman, Chancellor of the University of Pittsburgh; and Dr. Pearce Bailey, the neurologist, now deceased, who resigned after three months' service, and was succeeded by Dr. George H. Kirby, director of the New York Psychiatric Institute at Ward's Island, N.Y.

The consultants met for the first time on March 16th, 1921, obtained the assistance of an advisory committee under the chairmanship of Dr. T. W. Salmon (who represented the National Committee for Mental Hygiene), and proceeded to assemble data on which to build a Federal programme for "hospitalization." For this purpose an enormous amount of evidence appears to have been taken, and analyses were made of data concerning population, number of draftees, physical examinations by the army authorities, number of patients in the hospitals, prospective number to be hospitalized, their distribution by district, sex, colour and nationality, available facilities for treatment, percentages of empty beds, railroad facilities, climate, distribution of population, and so forth.

*Problems before the Consultants Board.*

The first great difficulty met with by the Board of Consultants was the division of authority in dealing with the veterans, and they felt that a centralization of authority would materially assist in establishing a "broad Federal hospital program." Three different bureaux of the Government dealt with the care of the veteran—the Bureau of War Risk Insurance, the Public Health Service, and the Federal

*Report of the Consultants on Hospitalization appointed by the Secretary of the Treasury. Washington: Government Printing Office. 1923. Pp. 112.

Board for Vocational Education—together with a large number of accessory organizations and private institutions.

Recognizing the desirability of a centralization of authority and decentralization in districts, the consultants submitted their views to the Secretary of the Treasury, who adopted their proposals to the extent of transferring to the Bureau of War Risk Insurance those functions of the United States Public Health Service which had to do with the care of ex-service men, and could be legally transferred.

In analysing the data for the purpose of establishing fundamental principles the consultants were faced by several secondary problems. Thus they found that there were large numbers of men in hospitals whose final recovery would be attained more quickly outside institutions. This was especially the case with psychoneurotics of the neurasthenic type, to the majority of whom hospital treatment was probably detrimental. The opinion of the consultants was that these patients should receive treatment in out-patient clinics, having a uniform policy of treatment under central control, the staffs being under divisional directors, and these directors under supervision from the central office at Washington. They pointed out also that patients should be made to realize that psychoneurosis is not a permanent disability, and that therefore permanent compensation was not to be granted.

Then the consultants found that the liberal provision by the Government for the care of ex-service men had led to a more pronounced influx into hospital during a period of great depression in trade than would otherwise have happened. Further difficulties arose in connexion with the personnel of the hospitals. In general, the consultants found that the civil institutions were much more economical in their administration than the Government institutions. They noted also the absurdity of trying to standardize personnel in institutions differing so widely in the requirements of the patients as a tuberculosis sanatorium and a surgical hospital; and they could see no reason in the demand of the Veterans' Bureau that all personnel should be housed on the property of the hospital. The consultants deprecated the tendency in Government institutions to centralize in the matter of special medical services, and to refuse the assistance of expert consulting advice from civil teaching institutions. In questions such as these the consultants found great difficulty because of the variation of expert opinion; but they felt that "in fields of human activity where positive knowledge is not available no standard could be set, and any attempt to standardize human organization could only meet with failure."

### *Standard Hospital Buildings.*

The only field in which standardization was accomplished was in hospital planning; and to the Report is appended a series of ground plans and views of hospitals erected in various parts of the United States. Standardization was one of the chief means of securing the rapid construction of these institutions. Difficulties with regard to the negro population were met by the location of an institution in a centre of negro education, conducted under negro leadership.

In considering the future economic use of the institutions to be erected, the Board of Consultants had the experience and co-operation of the National Home for Disabled Volunteer Soldiers. This body deals with the domiciliary care of chronic cases which remain from the Civil War—ex-service men for whom medical care is not the most important factor. Bearing in mind that many such cases will exist in the future, the consultants advised that such institutions for hospitalization as that at Chelsea, N.Y., should in time develop into homes for disabled ex-service men.

Notwithstanding the cumbersome nature of the machinery for co-operation between State and Federal Government, a beginning was made in hospital construction within five weeks of the appointment of the consultants, and in a little over three months plans were ready for 2,500 beds at a cost of 5,285,000 dollars, the consultants advising on the location and type of the hospitals which were to be erected. At this point, however, delays occurred owing to the establishment of the United States Veterans' Bureau and to changes in administration. The Veterans' Bureau was established in August, 1921, and in November a Federal Board of Hospitalization was instituted. Very early there seems to have been some disagreement between the Veterans' Board and the Treasury with regard to the use of surplus supplies for the equipment of the new hospitals. But allotments were finally made in May, 1922.

### *Supply and Demand.*

It appears that the consultants were originally faced with an estimated need for 20,000 beds—4,000 for general medical and surgical cases, 8,000 for tuberculous cases, and 8,000 for neuro-psychiatric cases. It was found that no increased provision of beds was necessary in the general medical and surgical group, and that by October, 1922, the demand for beds for tuberculous cases would be satisfied. The only need remaining after that date was 1,800 new beds for neuro-psychiatric cases. The consultants call attention to the fact that a great deal of money was spent during the war for temporary hospitals which had to be abandoned. If the Government had had a Federal plan for its hospital work much that was wasted could have been preserved as permanent institutions to meet the present situation.

The consultants note the interesting fact that New York State and Pennsylvania, the two most populous districts in the country, were the most poorly equipped in Government facilities; but, as the wealthiest states in the Union, they had the best hospital facilities for their civil population. Therefore the provision of additional facilities in their case was left to the last. In connexion with Chelsea, N.Y., it is pointed out that, although sentiment for ex-service men ran high, when any suggestion was made for the erection of a hospital for the tuberculous, local sentiment was largely for any district other than that chosen by the investigators!

As each project was completed it was transferred to the United States Veterans' Bureau for occupancy by patients. An inspection by members of the Consultants' Board led to the conclusion that there is nothing better in the United States for the special care of disabled veterans suffering from tuberculosis and nervous and mental diseases than the institutions which have been provided under Public Act 384. The total expenses of the consultants, with their advisory committee and other experts, exclusive of clerical and office expenses, was 16,000 dollars for two years' work.

### *A Federal Hospital Programme.*

The Report of the consultants is prefaced by a series of recommendations for a future programme of Federal hospitalization. It is advised that the subject should be one for continuous study in some Government office in which records should be kept of all hospitals throughout the States, and from which advice should be given with regard to the location, expansion, and equipment of hospitals. The standards for construction, equipment, and personnel should be changed from time to time as knowledge grows and conditions alter. The future economic use of the hospitals when they can no longer be utilized for the purpose for which they were built should be a matter of constant study.

The three purposes suggested by the consultants for hospitals when no longer needed for war veterans are: (*a*) transfer to the National Home for Disabled Volunteer Soldiers to be used for domiciliary care; (*b*) transfer to the United States Public Health Service for marine hospital bases; (*c*) the sale or transfer to the States in which they are located as part of their health and welfare equipment. It is advised, finally, that some plan of co-operation between the Federal Government and the States should be evolved so that the Federal authorities may guide and assist in making hospital practice uniform over the whole country.

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THE French Association for the Study of Cancer will hold a congress at Strasbourg on July 23rd and 24th, when the following subjects will be discussed: (1) Experimental production of cancer, introduced by Drs. Borrel of Strasbourg, Fibiger of Copenhagen, Ichikawa of Sapporo (Japan), Pintimalli of Naples, and Murray (Director of the Imperial Cancer Research Fund, London). (2) Local and general reactions of the organism to cancer, introduced by Drs. Rubens-Duval of Paris and Woglom of the Crocker Institute of Cancer Research, New York. (3) Treatment by radium and *x* rays of epithelioma of the skin and buccal cavity, introduced by Dr. Bayet, Director of the Radium Institute of Brussels, and Dr. Regaud, Director of the Biological Laboratory of the Radium Institute of the University of Paris. The Congress will consist of (1) members (medical practitioners), who will pay a subscription of 60 francs, and (2) associates (medical students, and others interested in cancer), who will pay a subscription of 40 francs. Associates will be entitled to all the privileges of the Congress except the publications. The official languages will be French and English. The titles of the papers intended to be read should be sent to the general secretary, Dr. G. Roussy, 21, Rue de l'Ecole de Médecine, Paris, before May 1st.

British Medical Journal.

SATURDAY, APRIL 21ST, 1923.

## MAN'S POSTURE: ITS EVOLUTION AND DISORDERS.

THE course of evolution has at times undergone, as the result of some apparently simple and trifling event, a change of the utmost importance and consequence—a change associated with the sudden opening up of new channels along which the current has flowed with almost torrential violence. Such a change ensued on the adoption of the erect posture, for is it not safe to say that everything which makes us what we are was only then made possible of acquirement?

Ever since the theory of evolution in its modern form was accepted, the adaptation of the human body to the erect posture has been a favourite study with anatomists, and a large number of interesting data, particularly in connexion with the bones, ligaments, and muscles of the body, have been recorded. Until recently, however, all attempts to explain them have been made in the main, if not entirely, on purely mechanical grounds. The discovery of hormones and the demonstration of their influence on growth has thrown a new light on the problem and has led to an extension of interest from the bones and ligaments to the viscera and the nervous system. A stage had been reached when it had become highly desirable that someone should collate the various contributions to scientific literature on the subject during the last century or so, and present the case in a clear, concise, and comprehensive form. Fortunately this has now been done, and by a man of science than whom none is more competent to deal with it. Sir Arthur Keith, whose course of lectures on the evolution of man's posture and the derangements with which it may be associated is concluded in our issue of this week, has not merely made a special study of the Primates, but has kept, as is his invariable custom, in close touch with the physiological and pathological aspects of the subject. No better instance of the happy conjunction of the man and the problem could well be imagined.

While he has treated the subject in a characteristically broad morphological manner, the morphology is deftly interwoven with practical suggestions of the greatest importance, so that it is in no sense academic or obtrusive but yet sufficiently in evidence to prove that it can provide the key to those problems of physiological anatomy on the correct solution of which the scientific practice of preventive and curative medicine alike depends. A knowledge, for example, of the evolution of the foot and of the perineal region can furnish the only safe lines along which to work in preventing or curing derangements of these parts.

It was inevitable that the change from the pronograde to the orthograde position should be associated with considerable disabilities, for the change affected practically every structure in the body to a greater or less degree, and it could scarcely be expected that all would be able to adapt themselves with complete efficiency to the new conditions. As a matter of fact, save in the abdominal region, Nature has been singularly successful in the compensatory measures she has adopted. Nothing, for instance, is more striking than the "simultaneous and harmonious adaptational" contrivances whereby equilibration is secured or the respiratory act changed from a pronograde to an orthograde type. So delicate and so perfect is the adaptation that there will, we believe, be full agreement with Sir Arthur Keith when he says, "we must postulate a much more elaborate mechanism controlling developmental processes than any we have knowledge of as yet." What the mechanism is we are left to conjecture, but that it exerts its effect largely through hormones is believed to be more than probable.

In the face of such success in other parts of the body it becomes interesting to inquire why there should be comparatively so signal a failure in the region of the abdomen. The failures here may be classified into those associated with weakness of the pelvic floor, and those connected with the various types of hernia and visceroptosis. As to the first it must be remarked that, whereas the floor is the highest part of the abdominal cavity in the standing pronograde animal, it is the lowest in the standing orthograde animal; in the former animals, again, the root of the tail is depressed and thus acts as a shutter supporting the perineum in any movement associated with an increase in the intra-abdominal pressure; in them, too, the vaginal orifice is a mere chink and is situated posteriorly where the support of the root of the tail is available. The comparative failure to provide an adequately strong pelvic floor in man would appear, therefore, to be due to the existence of several adverse influences. The liability to hernia in the region of the groin is no doubt in part due to defective parietal defences consequent on changes in the shape of the ilium and in the attachment of the oblique muscles of the abdominal wall, but there is probably another factor to be considered—namely, that of visceroptosis, a condition believed to be due to a disturbance of the reflex postural mechanism dependent on sensory fibres from the viscera and motor fibres to the parietal muscles. This mechanism may be in turn controlled by a hormone and be peculiarly susceptible to influences arising from errors of diet.

Perhaps the chief impression we receive from this valuable course of lectures is how very far growth is from being the simple process which it was aforetime thought to be. It is now seen that there is the closest and most intimate relation between the growth of adjacent structures. It appears, indeed, that, in certain parts of the body at any rate, growth affects collections of tissues rather than individual structures. Nor is the subject rendered more simple by the postulation of the influence of hormones, for these after all can only be imagined to act in the manner of a chemical stimulus. The source of the original impulse is still to seek, and must be found in the nervous system or inherent in the actual cells concerned. Although this must be the case the study of the action of hormones is of the greatest practical interest, for their experimental use in stimulating or holding in check the processes of growth is not beyond the range of possibility.

We commend these lectures to our readers with the greatest confidence as furnishing them with guiding principles and stimulating suggestions; the subject is peculiarly obscure, but obviously it has important practical bearings, not only for the surgeon but also for the medical profession at large, and to some extent also for the educationist. In congratulating Sir Arthur Keith on bringing to a satisfactory termination work on which he has been engaged during so many years we would take the opportunity of congratulating him no less heartily on his complete restoration to health.

## THE MEDICAL SERVICE OF KENYA COLONY.

THE health services in the various colonies and dependencies of the Crown, and more especially those in tropical areas, are obviously key services—that is to say, their maintenance upon an adequate basis is an essential condition of economic stability and development—and

any threat to their efficiency is matter for grave concern, not to the individual service or to the medical profession only, but to all who have the welfare of the colonies at heart. That the efficiency of the service depends ultimately upon the class of candidate attracted by the conditions offered is equally true. This is a sufficiently trite text, but unfortunately there are not lacking indications that the sermon is urgently needed. Of these indications the latest comes from Kenya Colony.

The essential facts of the case seem to be as follows. During the last two years the Colonial Government has been contending with conditions of the utmost difficulty and danger. On the one hand, post-war economic problems have been complicated by failure of the rains and consequent famine, and also by peculiar currency difficulties; on the other, development has been hampered by racial animosity and suspicion in the most acute form. Early last year the Colonial Office indicated that a reduction of 50 per cent. in the current estimates was essential to the stability of the colony, and the Bowring Committee of the Legislative Council was appointed to explore the possibilities in this direction. Its recommendations included the abolition of the local allowance to European Government servants, and a reduction in the estimates of the Medical Department of £50,000. The reduction of the local allowance was discussed in detail in a Current Note in the SUPPLEMENT to the BRITISH MEDICAL JOURNAL of June 24th, 1922, and is not for the moment in question, but it may be remarked in passing that the recommendation has not been accepted without modification, and an allowance of 15 per cent. in place of the original 50 per cent. has been conceded for the current year.

The proposals for retrenchment in the Medical Department comprise, according to a statement in the House of Commons by the Under Secretary of State for the Colonies, "the abolition of one post of senior medical officer, eight of medical officers, one of dental surgeon, and a number of other appointments." They "have been framed so as to affect as little as possible the principal centres of population, and they concern mainly the minor stations and those out-stations where other facilities exist or may be made available for medical attention. They have been closely examined by the late and the present Governor, and although the reductions have been effected with great reluctance, the Principal Medical Officer is satisfied that efficiency can be maintained." This statement is worth careful consideration. It discloses a position affecting the welfare of the colony, the interests of existing members of the medical service, and the general conditions of service in the Colonial Medical Services.

In the first place, then, we learn that the efficiency of the service is to be maintained, notwithstanding a reorganization involving not only the abolition of ten medical appointments (the Government dental surgeon is a fully qualified member of the medical staff), but a reduction of ten in the total personnel of the service. To maintain efficiency in face of a reduction of over 30 per cent. in a department not generally considered to be overstaffed would seem to be a surprising enough achievement. When it is further indicated that the localities concerned are the minor centres of population and out-stations, and that alternative facilities for medical attention may be available in these localities, we are even more mystified. Minor centres are not usually those where medical facilities abound. We fear that the explanation of the matter must be sought in a recent enactment (Ordinance 3 of 1922) empowering the Principal Medical Officer to license (for the purposes of private practice in the colony) assistant surgeons and hospital assistants who have completed their term of Government service. These persons, it must be explained, are not fully qualified practitioners, although they have undergone a course of medical training and held subordinate postions in the service of the colony. The Dominions Committee of the British Medical Association warmly endorsed the protest entered at the time by the local Branches against this introduction of unqualified practice, regulated and licensed by a single Government officer, in place of the Medical Board charged with registration under the Medical Ordinance of 1910. If these are the "other facilities" referred to they can hardly be taken as the equivalent of the facilities withdrawn by abolishing a substantial proportion of the posts held by fully qualified medical practitioners.

Passing from the general aspect of the matter to its effect upon the medical service itself, we find the position equally unsatisfactory. Some at least of the officers affected are known to be men with a considerable period of service to their credit, but not yet entitled to retire on pension. Such medical officers had every reason to suppose that the service offered them security of tenure, and presumably entered into financial and other commitments accordingly. The Dominions Committee of the Association has been informed that they will receive a pension equivalent to that permissible in the event of retirement on medical certificate, and no other compensation. In view of the fact that the current Colonial List shows some twenty-three temporary medical officers in the several East African colonies, it is not, perhaps, too much to hope that the Secretary of State may find it possible to offer them alternative employment in lieu of such compulsory and inadequately compensated retirement. The prerogative of the Crown to determine the employment of a Government servant is of course beyond dispute, but it is not the least disquieting factor in the situation that the Colonial Office has sought to justify the present policy by the argument that the existence of this prerogative precludes the assumption that the appointments in question are permanent. Prospective candidates for the services will therefore be well advised to obtain an official interpretation of the statement in the current Colonial Office memorandum on colonial medical appointments to the effect that such appointments in the East African Colonies are, after a probationary period of two years, "made permanent" if service has been satisfactory. Security of tenure has in the past been reckoned not the least among the attractions of the colonial services, and its withdrawal must affect the quality of the candidates coming forward in the future. The precedent now established may prove detrimental to the Colonial Medical Services as a whole, and not merely to those in Kenya Colony.

The case of the dental surgeon may be mentioned as an illustration of the nature and probable effects of the present retrenchment. The post was created in 1913, and since 1915 dental service has been guaranteed to members of the East African Civil Service under the Code. In that year a Colonial Office subcommittee on dental facilities in tropical Africa recommended the confirmation of the appointment to the medical officer then holding it, and declared that only a very grave emergency could be held to justify taking the Government dental surgeon away from the work properly attached to the appointment and employing him on medical or other work not so attached. Such an emergency did, in fact, arise in the course of the war, and it was not till 1918 that this officer resumed dental work. In 1922, in spite of the prevailing financial stringency, the estimates provided for the extension of the work by the appointment of an assistant dental surgeon and two dental mechanics, but the Legislature refused to vote the money, and accordingly the dental surgeon

has in the interval dealt single-handed with a volume of work which would occupy the time of a staff of four.

It is to be feared—in fact experience dearly bought in similar circumstances elsewhere leaves no doubt—that an attempt to maintain the efficiency of the Kenya Medical Service under the conditions we have described must end in failure, with injurious results to the public health and economic development of the colony. It has been alleged on good authority that official neglect of the public health of the colony must tend to aggravate the political unrest at present existing, and the suggestion is not so far-fetched as at first sight it may seem. We have no detailed information as to the public health conditions in Kenya, but they are known to be primitive, as is inevitable in a new country with a new and changing population. Squalor and disease do not tend to produce a contented people, and a low standard of health saps enterprise. The relation between efficient public health administration and economic progress is direct, and is recognized by statesmen and legislators in this country. We can therefore well believe that the organization of a properly equipped and fully staffed Public Health Department in Kenya would go far towards solving the municipal tangle which persons well acquainted with the circumstances consider to be in part responsible for the racial question which is the cause of much embittered feeling not only in East Africa but in India.

## THE BUDGET.

MR. BALDWIN'S speech on Monday marks another milestone on the road from war finance back to the less disturbed and less sensational conditions usually associated with peace. That we have not yet reached that goal is sufficiently indicated by the inclusion in the estimated revenue for 1923–24 of £40,000,000 from miscellaneous special receipts, and £12,000,000 anticipated from the excess profits duty; the expenditure side of the statement shows an estimate of £73,655,000 for the Ministry of Pensions, a reduction of £16,336,000 on the corresponding estimate for 1922–23, but nevertheless a figure which shows very clearly how acutely Budgets for years to come will be affected by changes arising out of the war, even apart from payment of interest on the war debt.

The magnitude of the realized surplus for 1922–23 has been a surprise. Although Sir Robert Horne suspended the operation of the Sinking Fund in order to relieve the country by reducing taxation, yet, in fact, there was a realized surplus of £101,516,000, which, added to other sums included under the head of expenditure in the original estimate, has enabled the Treasury to issue out of revenue for repayment of debt the huge total of £126,227,000 in a single year. This result is to be attributed to several factors, but the outstanding features of the statement are, first, that income tax (including super tax) produced £50,000,000 more than had been anticipated, and thereby made good the balance of deficiency that would have been incurred on the other items of revenue; and secondly, that the expenditure was £91,404,000 less than the estimate. The existence of such wide variations is a matter for some regret, since the annual Budget debate is one of the few occasions on which Parliament, as a whole, takes an active part in government and exerts real influence not only on national policy but on its detailed development and administration. The departmental estimates form the foundation for the Government proposals and subsequently for the criticisms of the Opposition, and unless the margin of error in the estimates can be narrowed the most vital of all parliamentary proceedings must start from false premisses. Where, as in the present instance, the actual result is more creditable to the taxpayer and more helpful to the future generation than that which had been anticipated, the pride of the occasion is apt to put a gloss over the danger inherent in unfulfilled expectations, and a word of warning is the more desirable.

Having made this point, however, we hasten to admit that last year was a peculiarly difficult one. The heavy arrears of income tax outstanding at its beginning were likely or unlikely to be received by the Exchequer according to the extent to which industry generally pursued an upward course or remained in the trough of the trade depression; and, in fact, the income tax surplus seems to have accrued largely owing to the slight but general improvement in industrial conditions, which led to the clearing off of outstanding claims to a greater extent than the Treasury felt able to anticipate. On the expenditure side a factor of the utmost importance is the continuance of a high general price level. Departmental estimates for any particular year have to be prepared, discussed, and revised before the close of the previous year, and it is obvious that some price level has to be assumed for the purpose. If the following twelve months witness a general fall, it is clear that an automatic saving on the estimate should result. For this reason it is essential that constant care and supervision should be exercised, and unremitting pressure brought to bear on the departments to ensure that these savings should not be dissipated in performing the duty provided for in a manner different from, even if more effective than, that contemplated in the original estimate. In other words, if the work was expected to cost £1,000 and it is found that it can be done in the way desired for £850, then only that sum should be spent on it. Mr. Baldwin seems to be fully alive to this aspect of the question, and his omission to provide any special margin for Supplementary Estimates was avowedly intended to bring pressure on departments finding it necessary to put them forward to provide for them out of savings elsewhere.

The outstanding feature of the estimated expenditure for 1923–24 is the inclusion of £40,000,000 Sinking Fund for repayment of debt, coupled with an undertaking to increase that provision for the two following years. The wisdom of this step is contested in some quarters, but where the natural bias of mankind is in favour of postponement in such a case as this, the contention that we may reasonably leave the immediate future to take care of itself needs to be buttressed by stronger arguments than we have yet seen. It is impossible to dogmatize on the point, so many tendencies and probabilities enter into the problem, but Mr. Baldwin's action has the merit of courage and deserves to find its justification in success. The measure of the courage required can be found in the fact that the £40,000,000 allocated to Sinking Fund—as against nothing last year—is a greater sum than the surplus of £36,000,000 left, on the basis of present taxation, to be distributed in reduction of the taxpayers' burden. The details of this reduction are set out in our Parliamentary Notes. The sixpenny reduction in the standard rate of income tax is undoubtedly sound, and though there may be some legitimate disappointment in the continuance of the existing sugar duty and also as to the proportions in which the fall in the retail price of beer is to be divided between the brewer and the Exchequer, the relief to the "indirect" taxpayer seems to have been reasonably apportioned. The minor alterations in the postal and telephone rates are welcome, not only in themselves, but as tending to remove a cause of irritation. It is noteworthy that the long-continued protests against the Corporations Profits Tax—a fairly new but by now almost friendless impost—proved successful to the extent

of having obtained a reduction in the future, though the yield for 1923–24 is not expected to be affected thereby.

There remains the question of a tax on betting, which is to be the subject of inquiry by a Select Committee. Judgement must be suspended for the present, until some solution of the problem of administering such a tax is put forward. On theoretical grounds it would certainly seem that a man making a bet can afford to pay a tax as well as another who may prefer to take his pleasure or excitement in attending a taxed entertainment.

Mr. Baldwin's first Budget appears to be sound and reasonable; it strikes us as typically British in its mixture of shrewdness, foresight, and determination, and as one with which its author may be well content.

## OCTOCENTENARY OF ST. BARTHOLOMEW'S HOSPITAL.

THE celebration of the eight hundredth anniversary of the foundation of St. Bartholomew's Hospital will be held on Tuesday, June 5th, and will be continued on the following days. It will begin, as is fitting, with a service in the Priory Church of St. Bartholomew the Great at 10 30 in the morning. An hour later a pageant will be held within the gates of the hospital. The pageant will consist of five processions—the first one formed by Augustinian canons chanting the ancient hymn used at the foundation of an Augustinian Priory, for it must be remembered that the hospital was under the rule of this religious order for the first four hundred years of its existence. The second procession will illustrate the return of Rahere—the founder of the hospital—from his pilgrimage to Rome. The third procession will show King Henry VIII giving the charter for the refounding of the hospital to the Lord Mayor and citizens of London, and Mr. Arthur Bourchier has promised to enact the part of the King. The fourth procession will show a detachment of the R.A.M.C. with an ambulance such as was used in the great war. The final procession will be formed by H.R.H. the Prince of Wales accompanied by the treasurer, the chief officers, the medical, surgical, and nursing staffs of the hospital. The processions being ended there will be a luncheon for the delegates and others at the invitation of the Lord Mayor. In the afternoon the Prince of Wales, as president of the hospital, will receive congratulatory addresses in the Guildhall, the addresses being presented by the delegates nominated by the English-speaking universities and colleges. Later in the afternoon a series of tableaux will be shown in the Great Hall of the hospital. The tableaux, illustrating various picturesque events in the long history of the hospital, will be produced by a committee of Royal Academicians under the presidency of Sir Aston Webb, and Sir Alexander Mackenzie, Mus.Doc., will provide appropriate music. There will be a conversazione in the evening, when the hospital square will be illuminated. A memorial volume containing a short but well illustrated account of the hospital, past, present, and future, has been prepared. A medal has also been struck from the design made by Mr. Charles L. Hartwell, A.R.A., and it is intended that each delegate shall receive a copy of the book and a medal. The Students' Union of the hospital will reproduce Bartholomew Fair as it was in the time of King Henry VIII. Booths will be erected at which various goods will be on sale, and there will be a charge for admission. The old English sports of quarter-staff, wrestling, tumbling, and acrobatic performances will be shown. A souvenir programme will be sold at the fair. It is illustrated and will contain a short history of the hospital. It is hoped that it may contain contributions from the pen of the Poet Laureate—a former member of the staff of the hospital—and from that of Mr. Rudyard Kipling. There will also be exhibitions of the charters, portraits, prints, books, and surgical instruments which are more especially connected with the history of the hospital. The celebration will continue over the next two or three days of the week, and will be brought to a conclusion by an especial meeting of the Rahere Lodge of Freemasons to be held in Freemasons' Hall on Friday, June 8th. It is a remarkable testimony to the liberality of the citizens of London and of the Governors that no part of the expense of the celebrations will fall upon the hospital, for the whole cost has been guaranteed.

## PROPOSED INTERNATIONAL ASSOCIATION OF BRAIN WORKERS.

SOME three years ago M. Henri de Jouvenel, one of the French Delegates to the League of Nations, succeeded in establishing in France a *Confédération des travailleurs intellectuels*. This was the first national association of brain workers and now has 150,000 members; similar associations have been formed in eight other countries. A meeting of representatives of these associations was held recently at the Sorbonne, the headquarters of the University of Paris, with the countenance of the French Government and under the honorary presidency of M. Léon Bourgeois, one of the most universally respected of French statesmen. It was attended also by "observers" from nine other countries. Among the "observers" present were persons nominated by the several British societies, among others the British Medical Association, which was represented by Dr. Gustave Monod. The meeting first of all received communications with regard to the position in the various countries, and after a brief discussion it was decided to found a *Confédération internationale des travailleurs intellectuels*—that is to say, an international association of brain workers. A committee was appointed, consisting of two delegates from each of the eight countries having an organized confederation, and an "observer" from each of the other countries represented; the latter having only consultative privileges. This committee was instructed to take steps to invite those countries which had not already done so to establish associations of brain workers and to draw up a constitution for the international association; the draft is to be submitted to the national organizations and afterwards considered at a meeting to be held in Paris before the end of this year. Dr. Monod informs us that medical societies in France are beginning to join the French confederation. The Association Générale des Médecins de France joined a short time ago, and on April 11th the members of the Therapeutic Society of Paris, a purely scientific body, unanimously resolved to join also. Among the objects the organization has in view is the prolongation to eighty years of the period during which the author has a property in artistic and literary creations, and to extend this principle to scientific workers. With this object it will seek to bring into existence an international code governing the right in intellectual property.

## INSULIN FOR SALE.

THE announcement made by the Medical Research Council in the memorandum published this week (p. 695), that the quantity of insulin now being made in this country is sufficient to warrant its sale to medical men and hospitals, will be received with interest by the profession, which has been anxious to try the new remedy, and with high hopes by sufferers from diabetes mellitus who have read of the remarkable effects it can produce. The sale is not to be entirely unrestricted, but the conditions proposed by the Ministry of Health are not unreasonable, and are probably necessary at the present stage. The supply of insulin is still limited; moreover, it is a potent agent, and the risks that may attend its administration must be borne in mind. Given to suitable cases of diabetes mellitus and in appropriate doses, its effects upon the sugar in the blood and its excretion in the urine are remarkable, and when given in diabetic coma, at any rate at its onset, highly dramatic. But if imprudently used in diabetes or given to inappropriate patients dangerous symptoms may rapidly be induced. The note prepared under the direction of the Medical Research Council and issued with the remedy by both of the manufacturing firms which are at present able to supply it states that "while the use of insulin is unnecessary, and therefore undesirable, in the milder cases of true diabetes mellitus, it is

definitely dangerous in cases of the so-called renal glycosuria or diabetes innocens, in which the condition is not due to defective use of carbohydrate, but to failure of the kidney to hold back the normal proportion of glucose in the blood, so that the patient is already in a condition of persistent hypoglycaemia. By still further reducing the blood sugar, insulin will aggravate this condition, and the patient will be abnormally liable to the unpleasant and alarming symptoms ordinarily associated with excessive dosage of insulin," as described in detail in our columns on January 6th (p. 11). The danger of giving too large a dose or administering it not in due relation to the diet is also pointed out in the note, which should be studied along with the papers by Macleod, Banting, and his colleagues, published recently in the JOURNAL. Great credit is due to the British firms for the enterprise and skill which have enabled them to produce insulin on a commercial scale within a space of time which, considering the difficulties that had to be overcome, is remarkably short—some three or four months. Not only have they accomplished this, but, acting on the results obtained at the National Research Institute under the direction of Dr. H. H. Dale, they have succeeded in preparing a concentrated solution so that the dose is small—much smaller than at first seemed possible. The excellence of the result, and the rapidity with which it has been attained, afford a good example of what can be achieved by the skilled workers in a commercial laboratory who are inspired and directed by research of the highest and most accomplished order.

## THE ROCKEFELLER BUILDINGS AT UNIVERSITY COLLEGE, LONDON.

THE visit of the King and Queen to University College and its Medical School to lay the foundation stones of the new obstetrical hospital and the new nurses' home will be paid on Thursday, May 31st, at 3.15 p.m. These two buildings are in Huntley Street, whose northern end is already occupied by one side of the medical school buildings which front the side of the hospital in University Street. Their Majesties will also formally open the new Anatomy Institute of University College, recently erected in Gower Street immediately south of the College quadrangle and west of the Physiological Institute, which also has been enlarged. It was announced nearly two years ago that the Rockefeller Foundation had arranged to give sums amounting together to £1,205,000 to University College and University College Medical School with the aim of forming in London an ideal medical school equipped in all departments on the most modern lines. Of the total amount given to the College the sum of £370,000 was for an Institute of Anatomy and for additions to the staff of that department and certain others. The cost of the site, building, equipment, and library of the Institute of Anatomy was estimated to be £190,000, leaving a capital sum for maintenance of £180,000, calculated to provide £5,000 a year for additional staff in the Anatomy department, £2,500 in the Physiology department, and £1,500 in other departments. University College Hospital fills an island site, so that it is not susceptible of enlargement. The number of beds at the disposal of the Directors of the Clinical Units recently established was considered to be too small and it was not found possible to make proper provision for obstetrics. It was decided, therefore, to take over the space in the nurses' wing and to build a new nurses' home and a new obstetrical hospital. The Rockefeller Foundation arranged to give £400,000 to University College Hospital and Medical School for building and reconstruction and £435,000 for maintenance. The income of this endowment fund is to be used for the furtherance of medical education and research in the Medical School, but a sum not exceeding £16,000 a year is to be applied to the upkeep of the 120 beds allocated to the purposes of the Medical and Surgical Units until such time as money can be otherwise raised, when the income of the endowment will be restored to its original purpose of helping medical education and research. The new buildings for the Obstetrical department it is estimated will cost £110,000, and will provide sixty beds; the responsibility for their maintenance will fall on the corporation of the hospital, which will have to increase its present income by some £15,000 to £20,000 a year.

## THE LEGAL PERIOD OF GESTATION.

AT a meeting of the Medico-Legal Society on April 17th Dr. T. W. Eden spoke on the medico-legal aspects of the duration of pregnancy. The old obstetricians, he said, had very definite opinions as to the normal length of pregnancy, and paid small regard to the difficulties of the subject; in the Gardner peerage case in 1816 one of the medical witnesses laid it down that forty weeks from conception was the extreme period to which pregnancy could be prolonged. It was English law at present that points of physical resemblance did not constitute evidence which could be received in court. Possibly at some future time reliance might be placed on evidence as to certain reactions of the blood, based on the fact that the characteristics of blood-grouping were transmitted on Mendelian principles. Meanwhile, in legitimacy cases it was necessary to fall back on calculations as to the period of pregnancy. To determine the normal duration of pregnancy was a complex problem, and did not admit of an exact solution. Pregnancy commenced in profound obscurity, and its termination with the birth of the child was frequently not at the end of the normal period, whatever that might be. The difficulty of arriving at the date of fertilization was that, although there might be reasonable certainty that the spermatozoa were in the genital tract, there were no means of ascertaining at what time the egg cell was there to meet them. In cows and mares the variation in either direction from the mean of a number of carefully observed gestations was, in both species, 12.5 per cent. The normal duration of human pregnancy, although variable, was not variable to the same extent as in animals. There were two starting-points for the calculation of pregnancy—namely, the date of intercourse, and the date of the last menstruation. Fertilization was most likely to occur during the week following the menstrual period, but there were opportunities for fertilization at any point in the menstrual cycle, which made this method of calculation very difficult. Some women, moreover, continued to menstruate for two or three months after conception, though many of the instances in which this was alleged to have occurred were not really cases of menstruation at all, but of bleeding from some pathological cause. A number of estimations based on the last menstrual period showed that 15 per cent. of the pregnancies went on to the 39th week, 24 per cent. to the 40th week, and 22 per cent. to the 41st week. Similar calculations from the date of coitus showed that 45 per cent. went on to the 40th week, and if the three weeks were taken (the 39th to the 41st week inclusive) the proportion of pregnancies which terminated within this period was 77 per cent. In common practice 280 days was reckoned from the cessation of the last period, or 274 from the date of the last coitus, but variations up to three weeks might be accounted for by the uncertain incidence of ovulation. Much wider variations were sometimes recorded, even in successive pregnancies in the same woman. One instance was given by Taussig, in which the same woman had pregnancies of 277, 325, and 285 days. Cases in which pregnancy exceeded 300 days from the last menstruation were rare; in Germany it was stated that 6 per cent. of the pregnancies exceeded that period, but in this country the proportion was certainly less, and it was quite possible that racial characteristics were influenced by variations in the period of gestation. The longest pregnancy (331 days), based on calculation from the last coitus, was that which formed the subject of the Gaskill case,[1] and a period of 336 days was recorded in another case in which the reckoning was from the commencement of the last menstruation. On the question how far the length of the gestation process might be judged from the characters of the child when born, Dr. Eden said

[1] For Lord Chancellor Birkenhead's judgement in this case see BRITISH MEDICAL JOURNAL, August 6th, 1921, p. 220.

that one medical work quoted Shakespeare as the authority for the statement that a child might be born "full fourteen weeks before the course of time" and reach a lusty maturity, but if the passage (*King John*, Act I) were referred to it would be found that Shakespeare made no such claim, for there was confessed illegitimacy. To the question of Philip Faulconbridge, the bastard—

> Therefore, good mother,
> To whom am I beholden for these limbs?
> Sir Robert never holp to make this leg—

Lady Faulconbridge replied:

> King Richard Coeur-de-Lion was thy father:
> By long and vehement suit I was seduced
> To make room for him in my husband's bed.

The conditions which governed the weight and development of the child were largely unknown, and the same was true of the length, though this was a rather more constant factor. In protracted gestation the weight of the child should be much above the average. In cases in his own private practice in which gestation had been prolonged to from 290 to 300 days the weight varied from 8¼ lb. to 12 lb., the average being 9½ lb. Cases which went beyond 320 days were extremely rare, and the facts with regard to them should be closely scrutinized; if the circumstances lent themselves to misrepresentation confirmatory evidence should be sought, and in particular it should be noted whether the weight and dimensions of the child were much above the average. In the course of a brief discussion Sir Bernard Spilsbury said that on examining stillborn children he had found that some of the signs by which maturity was commonly judged were absolutely valueless, and that the weight varied extraordinarily in the full-term child, though length was a rather more constant factor. It had been suggested by some observers that the ossification of the sternum had diagnostic significance, but his *post-mortem* examinations did not support this view. The ossification of long bones, however, especially the lower end of the femur and the upper end of the tibia, was more reliable. Lastly, Dr. Eden suggested that in the living child radiographs of the ossification of the long bones might prove useful in a disputed case.

## THE TEACHING OF OBSTETRICS AND GYNAECOLOGY.

THE Ministry of Health has issued a report on the arrangements for teaching obstetrics and gynaecology in the medical schools of Great Britain. It has been prepared by Dr. Janet M. Campbell, senior medical officer for maternity and child welfare in the Ministry of Health, as a part of the inquiry she is conducting into the causes and prevention of maternity mortality. A brief introduction, in which the history of the subject is sketched, is followed by a long series of detailed notes on the existing arrangements at a number of medical schools. This, which occupies about half of the bulk of the report, is followed by some general observations, and these again by a discussion on some particular matters, such as ante-natal or pre-maternity clinics, midwifery districts and lying-in hospitals, puerperal infection, ophthalmia neonatorum, and infant welfare. In the observations on the teaching of midwifery the report fairly represents present opinion upon the subject, which has undergone considerable modification within the last twenty years. The recommendations follow pretty closely the decisions reached by the General Medical Council, and include the suggestions that a sufficient number of maternity beds should be provided to enable all students to obtain suitable in-patient practice; and that the department of obstetrics and gynaecology should be a single whole, and not divided—an experiment in this direction made in Edinburgh was abandoned at the first opportunity. It will be remembered that a Memorandum on Medical Education in England, by Sir George Newman, was issued in 1918. We understand that another memorandum by him, dealing with recent advances, is in the press. When it is published we shall have an opportunity of reviewing the whole situation and of recurring to this subject of the teaching of obstetrics and gynaecology.

## HOSPITAL CONTROL IN THE UNITED STATES.

Two years ago, under circumstances stated in the article published this week (p. 685), the United States Treasury appointed a medical committee to advise on problems connected with the care of soldiers, sailors, merchant seamen, and other persons employed by the Government who had been disabled through service in the war, and especially with cases of tuberculosis and of nervous and mental disease. The report of the committee goes a great deal beyond its reference, and the "consultants on hospitalization," as the committee was called, have based upon the data they accumulated certain "recommendations for future Federal hospitalization" which seem to suggest something very like a State organization of the civil hospital system. The consultants advise that the hospital problem of the United States ought to be the subject of continuous study in an office of the Federal Government, which should keep records showing the situation, size, character, and use of all State, municipal, and civil hospitals. It should also advise on suitable sites for new hospitals, expansion of existing hospitals, standard plans for building, equipment, and personnel, and costs of construction and maintenance. The standards for construction, equipment, and personnel would be changed from time to time as knowledge grows and conditions alter. The office would be guided in the advice it gave by movements of population, functions of government, the future use to which buildings can be put, by transport, medical, and nursing facilities, and by the Federal relation and assistance to State, municipal, and civil health functions; the aim would be to afford uniform care to the citizens of the United States, free from the influence of individual or local interest. The number of hospitals constructed by the United States Government for disabled soldiers and sailors being greater than can be utilized for the purpose, the consultants recommend three methods of future disposal: (*a*) transfer to the National Home for Disabled Volunteer Soldiers—presumably institutions similar to our Chelsea Hospital—for domiciliary care; (*b*) transfer to the United States Public Health Service for marine hospital bases especially in the great shipping centres; (*c*) sale or transfer to the States in which they are located as part of their health and welfare equipment. The evolution of a plan of co operation between the Federal Government and the various States would, in the opinion of the consultants, lead eventually to guidance and assistance by the Federal authorities in making hospital practice uniform over the whole country. Such is the very large scheme the consultants have tacked on to their recommendations for the care of 20,000 war veterans. They recognize that the intervention of the central authorities in hospital questions, even if limited at the outset to advice, will in the long run tend to uniformity and to the adoption of standardization in construction, equipment, and personnel. We must confess that the views and plans of standardized hospitals at the end of the report are somewhat depressing, and in appearance resemble plans for barracks or factories. To economize time in erecting for the disabled hospitals of which there was urgent need, it is probable that standardization was useful, but for less urgent civil needs competition between localities in hospital construction may perhaps be healthy. Again, is centralization in a Government office desirable? It is true that there is much debate at present in this country about the overlapping of hospital provision, but it may be asked whether, if such overlapping exists, it will be remedied more effectually through supervision by a Government department or by promoting gradually the voluntary co-operation of institutions. The American consultants recognized the existence of a difficulty in the relation between the Federal Government and the States of the Union. In this country the problem of the relation between county and borough councils and the Ministry of Health is to some extent similar. It is worth inquiry whether under a scheme of State supervision of hospitals in this country some of the minor problems faced by the American consultants would not arise. They considered that a number of psycho-neurotics of the neurasthenic type were being wrongly retained in hospital

for treatment. Would it be better in this country that a Government department should inquire into such matters or that the medical staff should be left to discover the best method of treatment by their own observations and by communications published by other observers? It seems not impossible to imagine some such assumption of authority in matters of treatment by a Government department entrusted with hospital supervision; just as in the case of the psycho-neurotics, the consultants advised a "uniform policy of treatment under central control." Again, the influx observed in America of men under State provision into hospital during a period of great depression in trade is suggestive. Even more interesting is the statement of the consultants that in general the civil institutions were much more economical in their administration than the Government institutions. If the Federal Government in the United States of America is on the eve of a great experiment in "hospitalization," it will be interesting to watch the results.

## FELLOWSHIP OF MEDICINE.

AT a meeting of the Fellowship of Medicine held on April 13th at the Royal Society of Medicine a scheme, brought forward by the non-undergraduate hospitals in London, was considered, and it was decided to accept this scheme and take immediate steps to put it into operation. The scheme is devised to meet the needs of two distinct classes of post-graduate students—namely, those requiring short general refresher courses and those requiring advanced courses in the special departments of medicine and surgery. It is proposed to arrange the short refresher courses on the group system, centred in a general non-undergraduate hospital affiliated with certain special hospitals in its neighbourhood, each group making itself responsible for three or four such courses during the year. It is hoped that four, or perhaps five, of these groups will be founded in London. The programme will open with a course at the Prince of Wales's General Hospital, Tottenham, assisted by the special hospitals belonging to the North-Eastern group, from June 11th to 23rd. Further details regarding this course and others to follow throughout the year will be announced. For graduates requiring more advanced instruction it is proposed that each of the special hospitals should undertake two or three courses during the year, and in these it is hoped that specialists from the undergraduate hospitals will be willing to come to the special hospitals on the invitation of the staff and assist in lectures and demonstrations.

## THE OPHTHALMOLOGICAL SOCIETY'S CONGRESS.

THE detailed programme has now been issued for the annual congress of the Ophthalmological Society of the United Kingdom, which will be held at the house of the Royal Society of Medicine, 1, Wimpole Street, W., from Thursday, April 26th, to Saturday, April 28th, inclusive. The President, Dr. A. Maitland Ramsay, will give his opening address at 10 a.m. on April 26th. This is to be followed by papers, by Mr. Treacher Collins and Sir William Lister, on angeoid streaks in the fundus oculi; the technique of cataract extraction will be considered by Mr. Affleck Greeves, Mr. Foster Moore, Mr. D. V. Giri, and Mr. Charles Killick. At 2 p.m. a discussion on disorders of the blood and their ophthalmological manifestations will be opened by Sir Humphry Rolleston, Sir Frederick Andrewes, and Dr. W. C. Souter; Dr. A. J. Ballantyne will follow with a paper on retinal vascular disease, and fundus lesions in diseases of the blood. At 5 o'clock the Bowman lecture, on ocular aspects of pituitary body disorders, will be given by Professor George E. de Schweinitz, President of the American Medical Association. The congress dinner will be held that evening at the Langham Hotel. The principal business on the morning of April 27th will be a discussion on the diagnostic significance of proptosis, to be opened by Mr. Wilfred Trotter, Mr. H. Fisher, and Dr. Angus MacGillivray. In the afternoon a clinical meeting has been arranged at the London Hospital; cases and specimens will be shown and the hospital will be open for inspection. The evening session will be devoted to demonstrations of cases and apparatus and the reading of miscellaneous papers. On the morning of April 28th, after a brief business meeting at 9.30, further papers will be communicated.

## SIR WILLIAM DALBY MEMORIAL PRIZE.

LADY DALBY has recently handed to the Royal Society of Medicine the sum of £500 to be invested for the purpose of providing a perpetual memorial of her husband, the late Sir William Dalby, who was a well known otologist in London. The trust deed provides that the interest on the capital sum is to be accumulated for five years, when the product, less expenses, is to be awarded as a prize to the person who, during the previous five years, has produced the best original work done or published for the advancement of otology. The prize will be awarded by the Council of the Royal Society of Medicine upon the recommendation of the President and Vice-Presidents of the Section of Otology. The Society has one other similar fund, founded in memory of Dr. R. T. Nichols; under it the proceeds of a sum of £2,200 is awarded in recognition of the most valuable contribution to the prevention of puerperal septicaemia. It has also a Gibson Scholarship to assist medical women in research work. The Society not long ago received a bequest of £500 for an annual Lloyd Roberts lecture. It values very highly certain bequests and gifts it has received for its building and library. Thus its largest lecture room, the Robert Barnes Hall, was founded with a sum of £4,000 to commemorate Dr. Robert Barnes, a famous obstetrician in his day; and the Marcus Beck Laboratory, founded in memory of that beloved surgical teacher; it has also the Marshall Hall Room, by which the library facilities are improved, the Chalmers room, in which the library of the late Dr. A. J. Chalmers is housed, and a library room inscribed to Sir William Allchin. It has also two committee rooms, one to the memory of Henry Louis Florence, and the other to Joseph Toynbee; and finally the Frederick J. Gant bequest of £500 for the purchase of books to enlarge the Gant Library. The charters and by-laws provide that even in the event of the present building being destroyed or given up the name commemorated shall be preserved in any new building by the appropriation to it of a similar room.

## THE OPHTHALMIC HOSPITAL AT JERUSALEM.

THE thirty-first report for the year 1922 of the committee of management of the Ophthalmic Hospital maintained at Jerusalem by the Order of St. John of Jerusalem shows how much good can be effected by methodical work, even in a country so backward as Palestine, which teems with eye diseases. It is a matter for satisfaction that there should be an up-to-date hospital in its capital for the treatment of these conditions. During the past year a new out-patient department room, which was badly needed, has been built. The Patriarch of Jerusalem has presented a site, and plans for an annexe to the hospital to be erected on it are being prepared; at present, however, the cost of building prevents any active work in this direction being undertaken. The report of the warden (the senior British member of the staff) is largely statistical; the number of new cases seen was 12,651, and the total consultations numbered 57,848; the number of in-patients admitted was 1,268, and 2,859 operations were performed. Of new patients more than half were Moslems, a quarter were Christians, 1,393 were Jews, and 8 were of other religions. Of the new cases 1,174 were blind in one eye and 460 were blind in both. It is interesting to note the rapid increase in the number of spectacles ordered for patients; in 1919 spectacles were prescribed in 269 cases in 1920 in 473 cases, in 1921 in 760 cases, and last year in 1,148 cases; ophthalmic surgeons will appreciate the amount of work these figures indicate. Trachoma, of course, forms the chief bulk of the out-patient work, and acute conjunctivitis is

an easy second. Palestine suffers as heavily almost as Egypt from trachoma, and in some districts 97 per cent. of the inhabitants are infected by it; in school children the returns show an average of 74 per cent. for the country as a whole. The hospital is still below pre-war standard; in particular the bedsteads should be replaced by proper English hospital bedsteads; those in use are mostly of the army folding pattern, and all of them saw hard service in the war. An illustration appended to the report shows the hospital and the new out-patient building.

## BRITISH OTO-LARYNGOLOGISTS IN SWEDEN AND HOLLAND.

THE Section of Oto-Laryngology of the Swedish Society of Physicians has invited a certain number of representatives in this country to deliver in Stockholm lectures on subjects with which their work has been identified. To suit their convenience the meeting in Stockholm has been arranged for Whitsuntide. Mr. Arthur Cheatle (London) will lecture on the etiology and prevention of chronic middle ear suppuration, Sir StClair Thomson (London) on cancer of the larynx, Dr. Logan Turner (Edinburgh) on the occurrence of metastatic tumours in the larynx, with the description of a case, and Dr. Brown Kelly (Glasgow) on the significance of certain pharyngeal signs and symptoms. On their way to Sweden, the lecturers have been invited to join in the summer meeting of the Dutch Oto-Laryngological Society at The Hague on May 12th and 13th.

# Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

### The Budget Statement.

MR. BALDWIN presented his Budget on April 16th in a speech which occupied only an hour and a half and was businesslike and straightforward. He showed that the financial year just closed had steadily got better as it advanced. Home and foreign trade had improved, unemployment, though still grievous, had decreased, and Government securities had appreciated. A good sign was that Post Office Savings Bank deposits, which had fallen in the first three months of last year, had enlarged by more than a million and a quarter sterling in the three months of this year.

The surplus of 101½ million from a total revenue of £914,012,000 was obtained not by excess of revenue over estimate, but by the prompt application of drastic economy. The revenue gave 3½ million more than was anticipated—a fact due mainly to a surplus on death duties of nearly 9 million and on income tax and super-tax of over 50 million, which counterbalanced the failure of revenue under some other headings to come up to expectations. What made the income tax collections especially remarkable was that a huge sum of arrears (over £100,000,000 of income tax and super-tax) had been largely gathered in, and the current collection maintained. The surplus of 101½ million on the balance sheet had already according to law been appropriated to meet maturing liabilities. In regard to savings, the Chancellor mentioned as chief items 27 million on the fighting services, 55½ million on civil votes, and 6 million on the provision made for supplementary estimates.

The dead weight debt on March 31st, 1922, was £7,676,000,000. The corresponding figure at the end of this year was £7,773,000,000, but the increase was only in face value due to the conversion of various war bonds and to the inclusion of arrears of interest due to the United States in the capital of debt. Thus corrected the figures would show an effective reduction of 149 million face value. Moreover, the taxpayer would have saved by the conversion of bond debt £750,000 a year interest and 4½ million in premiums payable on bonds as they matured.

Mr. Baldwin said that in two years there had been a drop of 247 million on the ordinary estimates and of 82 million in special expenditure. He did not intend to provide any special margin for supplementary estimates, but to revert to the pre-war practice of providing for them out of savings elsewhere without upsetting the general total. Last year debt redemption was nominally suspended; Sir Robert Horne reckoned that he might have to borrow in order to maintain the fund which was earmarked for that purpose as regards various war bonds, but this was not necessary. Mr. Baldwin said that he proposed to include in the Finance Bill a clause to give altogether a sinking fund of 40 million this year, increasing it to 45 next and to 50 afterwards—a sum approximating to the yields of the death duties. This would also provide for the sinking fund for the American debt; the policy was essential for sound finance. Unless proper steps were taken to deal with the National Debt, in time it might be found an intolerable burden. Incidentally, he alluded to the large savings being effected and (as he hoped) to be effected by the conversion of stock to a lower rate of interest. He calculated that, as compared with actual receipts last year, Customs and Excise would give about 6¼ million less, motor vehicle duties £929,000 more, estate duties 2¼ million less, income tax nearly 35 million less, super-tax over 6 million less, excess profits duty nearly 10 million more, partly on account of arrears, and corporation profits tax a million more. He looked for an increase of a third of a million in the postal service, a fall of a quarter of a million on the telegraph service, and an advance of nearly 1¼ million on the telephone service. Reckoning in other figures, he budgeted for a diminished revenue of £61,362,000 as compared with what was obtained last year, and for a total revenue of £852,650,000. With an estimated expenditure of £816,616,000, he was left with a surplus of about £36,000,000.

Before stating his proposals for dealing with this balance Mr. Baldwin announced intended legislation to apply some of the recommendations of the Royal Commissioners of Income Tax to meet evasion. He had selected for the present several of the more important. He should ask that the existing three years of time limit for making the income tax and assessments and surcharges should be extended to six, and that there should be a similar extension for the recovery of statutory penalties, with an increase in the amount of some of the smaller penalties. He should propose a corresponding increase to six years for claim for repayment where no specific time limit was prescribed. He would propose also to rectify the machinery for collecting income tax from certain pensioners and servants of the Crown employed abroad, but chargeable here from time to time when on leave. It was his duty to remember that next year revenue for several reasons might not be so good and to contemplate suggestions for new taxation. In that connexion he would ask the House to appoint a Select Committee to consider taxation on betting.

The first reductions announced by Mr. Baldwin were in postal charges. The rate of foreign letters would be reduced to 2½d. for the first ounce, *plus* 1½d. as at present for each succeeding ounce, and the rate for imperial letters above the first ounce would be lowered from 1½d. to 1d. an ounce. The inland printed paper rate would in future be ½d. for every two ounces. On the telephone side a reduction would be made of 10s. in the annual rental of ordinary telephone installations, and there would be reductions in the annual charge for extension instruments; the free radius outside the London area would be extended from one mile to one and a half miles from the subscribers' exchange. The fee for local messages from local call offices would be reduced from 3d. to 2d., and there would be minor reductions on short-distance trunk calls. Mr. Baldwin regretted that he could not see his way to reduce the sugar duty. The price was rising in the world market on account of an expected shortage in supplies, and his view was that in these circumstances a reduction in duty, which would lead to an increased demand, would not, at any rate after a short time, benefit the consumer, but would go to the seller. He had therefore turned his attention to commodities mainly produced in this country. He proposed to reduce the beer duty, making a reduction which would allow of the price being lowered by 1d. a pint all round. The duty was assessed on the standard barrel, which meant it varied in accordance with the gravity or strength of the beer. If the duty on the standard barrel were reduced by an amount which represented 1d. a pint on the average, it would mean more than 1d. on strong beer and much less on light. To meet these conditions he thought the best course would be to keep the present duty of 100s. per standard barrel and effect the reduction by giving a rebate on each bulk barrel of beer whatever its strength. He did not intend that the full cost should fall on the Exchequer. He was satisfied that the brewers could afford 4s. out of the 24s. involved. The only qualification to change would be that the full rebate could not be allowed for beers of very low gravity. Table water duty, now levied at 4d. a gallon on sweetened table waters, would be reduced to 2d. a gallon, and the duty of 4d. a gallon on cider would be abolished.

Finally, Mr. Baldwin stated that he had resolved to reduce the income tax by 6d. He believed that the relief in taxation would thus be spread over the widest possible area and a stimulus to trade afforded. The reduction would cost 26 million in a full year. This year reduction, taking effect as from April 6th, would cost 19 million. He recognized, moreover, that the corporation profits tax was not a good tax, and he proposed to reduce the rate from 1s. to 6d. He summed up by saying that all these reductions would cost together £34,150,000 in the current year, and next year about £47,250,000. The final balance sheet for 1923-24 would thus be:

| | |
|---|---|
| Revenue ... ... ... ... | £818,500,000 |
| Expenditure ... ... ... ... | 816,616,000 |
| Leaving a nominal margin of ... | £1,884,000 |

### *The Payment of Insurance Practitioners.*

Sir Kingsley Wood, on April 11th, asked whether the Minister of Health contemplated any alteration in the terms of payment to doctors on the panel lists; and whether he proposed to consult with representatives of the approved societies on the matter. Mr. Chamberlain replied that before the expiry of the present agreement at the end of this year, both the terms of service and the remuneration of insurance practitioners would have to be reconsidered. In reply to the second part of the question Mr. Chamberlain said that the Insurance Consultative Council had already been consulted in regard to the terms of service, and would be consulted also as to

the rate of remuneration. There was no other body representative of all the approved societies, but he should be prepared to receive representations from the principal groups before coming to a final decision.

Sir Kingsley Wood asked whether Mr. Chamberlain was aware that representatives of the medical profession had declined to meet representatives of approved societies to discuss this matter. Mr. Chamberlain replied in the negative. Major Mackenzie Wood inquired whether the Minister thought that the Council represented the approved societies. Mr. Chamberlain answered that it was an elected body.

Mr. Fairbairn asked whether Mr. Chamberlain would undertake to consult the Insurance Committees in the country, who were representative of all sections. Mr. Chamberlain said that did not arise out of the question.

Sir Kingsley Wood inquired the number of doctors on the panel list, and the approximate annual amount they receive for service. Mr. Chamberlain said the total number of insurance practitioners in England and Wales according to the latest return was 12,588. The total payments to them in 1922 amounted to approximately £6,750,000.

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*Indian Universities.*—In reply to Mr. Fisher, on April 11th, Earl Winterton stated that at Dacca a residential university on the lines recommended by the Calcutta University Commission (of which Sir Michael Sadler was chairman) was established in 1921 in pursuance of an act of incorporation passed in the previous year. Owing to financial and other difficulties it had not so far been possible to give effect to the proposals of the Commission in regard to the University of Calcutta, but the complex problems involved were receiving most careful consideration by the Government of Bengal. The recommendations of the Commission had been of the greatest value to the authorities responsible for those Indian Universities which had been reorganized or established for the first time as separate universities since the report of the Commission. This was notably the case in regard to the residential universities of a non-affiliating type established during 1920-22 at Aligarh, Rangoon, Lucknow, and Delhi, and in regard to the reorganization of the Allahabad University in 1921. The question of reorganizing the Universities of Bombay and Madras had been receiving due attention in those Presidencies.

*Pension Assessments for Bronchitis and Asthma.*—Major Tryon stated, in answer to Mr. Cairns on April 12th, that the approximate number of pensions in payment in respect of affections of the respiratory system (other than tuberculosis) was 41,000. The Minister repudiated the suggestion of Mr. Cairns that medical boards took only two minutes in making an assessment. The average time given to cases of re-examination for renewal of pension was more than a quarter of an hour, and to first claims or for final awards the time given was usually over half an hour.

*Pensions Hospital at Sunderland.*—Major Tryon stated, on April 12th, on a question from Mr. Robert Richardson, that owing to decreasing requirements in the northern region, arrangements had been made to close gradually the Ministry of Pensions Hospital at Sunderland. This step was not taken without the fullest consideration of all the circumstances, and after consultation with the departmental medical advisers he was satisfied that ample facilities would remain to provide without delay all necessary treatment. Mr. Richardson hoped that the Minister would consider the large number of men enlisted from the county of Durham who might want to use the hospital in the near future instead of going as far as Gretna to receive treatment. Major Tryon promised to consider the matter. Mr. Lawson asked if he was aware that for four years the hospitals of Durham and Northumberland had not been able to meet the needs of the civilian population and whether he would further investigate this matter before placing even a small number of military cases upon the civilian hospitals.

*Tuberculosis in Sheffield.*—Asked on April 12th whether his attention had been called to the report of the Sheffield school medical officer, in which he stated that tuberculosis was a very frequent cause of ill health among school children, Mr. Wood said the figures would be reviewed with other similar returns. He was advised they were not representative of the country as a whole.

*Medical Services for School Children.*—Mr. A. Bennett inquired, on April 12th, if the Education Department had informed all education authorities in receipt of public assistance that they must no longer give medical service free to children whose parents were above the poverty line. Mr. Wood, in response, assumed the reference to be to Circular 1300 issued on March 16th last.

*Answers in Brief.*

Major Tryon states out of some 600,000 cases which came up for pension reassessment during 1922, it was found necessary to cancel entitlement to pensions on medical grounds in less than one-half of 1 per cent.

According to Mr. Neville Chamberlain, there were in this country on January 1st approximately 84,000 patients in infirmaries, and in the sick wards of other Poor Law institutions there were 9,800 children boarded out, and 32,000 children in Poor Law institutions provided wholly for the reception and maintenance of children. Women inspectors visited 206 infirmaries last year, and the infirmaries were also inspected by the male general inspectors and by medical officers of the Ministry. The superintending woman inspector was selected from the women inspectors, who required to be fully trained nurses.

# INSULIN AVAILABLE IN THIS COUNTRY.

## CONDITIONS OF SALE AND PRECAUTIONS TO BE OBSERVED.

STATEMENT BY MEDICAL RESEARCH COUNCIL.

ON November 18th, 1922 (p. 991), we published a statement by the Medical Research Council explaining the measures taken in this country for studying the production and properties of insulin and for promoting its manufacture here upon a commercial scale. On November 4th, 1922 (p. 833), we had published a paper by Professor J. J. R. Macleod, in whose laboratories in the University of Toronto the initial experiments were made, giving an account of the physiological and therapeutic effects of insulin; on January 6th, 1923 (p. 8), we published from the Department of Medicine in the University of Toronto and the Toronto General Hospital a report by Banting, Campbell, and Fletcher recording further clinical experience with insulin in the treatment of diabetes mellitus. On February 24th (p. 341) we published another statement by the Medical Research Council to the effect that insulin was being produced, standardized, and used in the treatment of selected patients at certain hospitals in London, Sheffield, and Edinburgh, and that the Council had entered into agreements with certain manufacturing firms in several parts of the country for the manufacture of insulin, retaining in the public interest control of the safety and potency of the product and its sale at a fair price. No royalties are payable to the Council under any of these agreements. The Council was then able to state that rapid progress was being made and that this was due equally to the laboratory investigations at the National Institute of Medical Research, Hampstead, and to the experience, skill, and enthusiasm which the firms had shown in their co-operation with the Council.

*British-made Insulin Available on a Commercial Scale.*

The Council is now able to announce that British-made insulin is being supplied from two sources—namely, the firm of the British Drug Houses, Ltd., in conjunction for this purpose with Messrs. Allen and Hanburys, and the firm of Messrs. Burroughs, Wellcome and Co. These firms, who undertook the manufacture under agreement with the Medical Research Council, have satisfied all the requirements and tests of the Council for authenticity, standard value, therapeutic efficiency, and sterility of the product sold. It is hoped that these sources of supply will be augmented at an early date by three other firms in different parts of Great Britain who are under similar agreements with the Council.

It should be understood that the rapid progress made by these five firms since the end of last November, and the actual achievement of successful and guaranteed supply within a period of little more than four months from the first attempts at large-scale production, have been made in spite of some serious handicaps. The large quantities of alcohol used for extraction brought the manufacture under almost prohibitive restrictions until certain concessions were made by the Commissioners of Customs and Excise, which allowed specially denatured alcohol to be used duty free. The embargo upon the importation of Canadian cattle had greatly reduced the supply of fresh raw pancreas material in this country, and a good deal of improvisation and initiative has been necessary for the effective organization of the available supply of raw material during recent months. The only limit now placed and likely to be placed for some time upon British production is the limitation of raw material available under suitable conditions.

*Supplementary American Supply.*

In the meantime Messrs. Eli Lilly and Co., of Indianapolis, Indiana, working under agreement with the University of Toronto, have been proceeding towards large-scale production since the early summer of 1922. By the courtesy of the university, this firm was able to submit samples of its insulin product to the Medical Research Council in February last for testing. At the end of March Messrs. Eli Lilly found themselves in a position to offer the Medical Research Council a considerable supply of their product for distribution in this country under similar restrictions to those at present governing distribution during a provisional period in the United States and Canada—namely, to approved hospitals and to physicians with approved clinical facilities. In view of the urgency of the demand, the Council cabled for this supplementary American supply, of which the first consignment is expected

to arrive during the present week. It is a remarkable coincidence that the products of large-scale American production should become available here only a few days after the first commercial supply of British insulin.

The Medical Research Council has arranged that the insulin of American manufacture should be distributed by those British firms whose own product is already available or may hereafter become available, and the amount distributed by each British firm will be in proportion to the volume of its own production. Both British and American insulin will be sold here only under that name (except for the addition of marks or brands indicating origin). A maximum selling price has been fixed by agreement with the Council for a short provisional period, and there is a probability of its being reduced at an early date.

*Purification, Potency, and Sterility.*

The British firms have adopted a method of purification of the final product worked out by Dr. Dudley at the National Institute for Medical Research. By this method it is possible to get rid of over 90 per cent. of the solid matter in the crude end-product of the original process, and it allows the manufacturers to offer the active principle in the form of hydrochloride in highly concentrated form, freed from accidental irritants and other substances. For the avoidance of improper exploitation of this valuable process provisional application for patent rights has been filed by Dr. Dudley, jointly with the Medical Research Council. It is probable that in the near future the American supplies will be submitted to the same process and offered in the same form. All the supplies now available have passed suitable laboratory and clinical tests for purity, potency, and sterility.

*Dose: Biological Test.*

The physiological unitage originally indicated by the first producers of insulin in the University of Toronto has not been retained. By agreement with the University, the American manufacturing firm has made current in the United States a unit having the approximate value of one-third of the original Toronto unit. The Medical Research Council has decided to adopt this smaller unit, so that all the insulin now made available in this country, whether British or American, will be standardized to a common unit value. Every batch put upon sale, of whatever origin, will be biologically tested under the supervision of the Council, and every preparation sold must bear a number corresponding with that of the batch from which it has been drawn.

*Distribution and Sale.*

For a provisional period the Council has retained, under its agreements with the manufacturers, control over the distribution of the commercial supplies analogous to that exercised by the University of Toronto over the products of American manufacture. It is clearly desirable, apart from other considerations, that now, and at least until the supply is more than equal to the demand, the available insulin shall be distributed so as to reach those patients whose need is greatest, and so as to be placed in the hands by which it can be administered to the greatest effect and with the least waste. Difficult problems arise here of interest and importance to the public, to the medical profession, and to hospital administrations.

The research work, both in the laboratory and in the wards, which has brought manufacture in this country to its present pitch, and all the connected problems of standardization and further research work, fall properly within the sphere of the Medical Research Council. These medical administrative problems of distribution, on the other hand, have been submitted by the Council to the Minister of Health, within whose responsibility they properly lie. Having regard to the special nature and urgency of the occasion, the Minister has appointed a small committee to advise him upon the subject, composed as follows: Sir George Newman (Chairman), Dr. R. A. Bolam, Sir Walter Fletcher, Sir Humphry Rolleston, Dr. Alfred Salter, M.P., Dr. McCleary (Secretary) (address, Ministry of Health, Whitehall).

*Conditions of Supply to Practitioners.*

To avoid any unnecessary delay, provisional authority had been given to the firms to distribute insulin to various large hospitals, and the first British made insulin was actually so supplied on April 12th. On the advice of this committee, manufacturers will be directed, during the present period of restricted production, to supply insulin only to those hospitals and to those registered medical practitioners who have proper facilities at their command for making accurate blood sugar determinations.

Each hospital and practitioner so supplied will undertake to observe the following restrictions upon the use of insulin:

(1) Careful correlation will be made of the diet, of the blood sugar changes, and of the insulin dosage in each case. For at least one group of cases it is known already that the insulin dosage can be reduced progressively with suitable adjustment of diet. This reduction allows economy of insulin, besides the advantage it may bring to the patient.

(2) Insulin will not be given to those whose symptoms can be controlled by moderate restrictions of diet. There should be no luxury use of insulin till supplies are abundant.

(3) It is understood, of course, that in emergency, and apart from the careful correlation just mentioned, insulin will be given to those in diabetic coma or those nearly approaching it, and it may be given to those with diabetic symptoms needing special preparation for some surgical operation.

(4) Care will be taken to avoid the danger of giving insulin to non-diabetic cases (for example, to patients with renal glycosuria).

Hospitals or practitioners desiring supplies for immediate use should apply to one or other of the British firms named above.

It is hoped that at a very early date preliminary communication will be made of the results of the insulin treatment which has been in progress during the past months in the hospitals at London, Edinburgh, Glasgow, and Sheffield, named in the earlier statement by the Council, in order that the experience gained in this clinical research work may be put at the disposal of the profession for its information and guidance.

*Cost.*

The present price of insulin prepared by either of the makers is 2s. 6d. a dose of 10 units, which is the average dose. It is a watery solution and is issued in rubber-capped bottles. The British Drug Houses and Allen and Hanburys, which have worked together, supply bottles containing 10 and 20 average doses (the price of the bottle being 25s. or 50s. respectively). Messrs. Burroughs, Wellcome and Co., who have acted independently, supply the solution in rubber-capped phials containing 100 units—that is to say, 10 average doses. The preparation of each firm fulfils the conditions laid down by the Medical Research Council, as explained above.

## THE LATE DR. A. G. SIMMINS.

### AN APPEAL TO THE PROFESSION.

THE deaths from influenza of Alfred George Simmins, M.B., B.S., aged 32, and his wife, within a few hours of each other, have been chronicled, together with a record of his services to his country and his profession, in the BRITISH MEDICAL JOURNAL of April 7th.

He was educated at Guy's and Westminster Hospitals, and at the time of his death held posts of responsibility at the Royal Northern Hospital and the Hospital for Sick Children, Great Ormond Street.

They leave three little children, for only one of whom—a boy of 6—some provision has been made. No funds are available for the education of the other two, a girl and boy, aged 4 years and 15 months respectively, and they are left penniless orphans.

At the time of the catastrophe Simmins was making good, but there was an overdraft at his bank as a result of the purchase of his practice, and he was precluded from the ordinary terms of life insurance by albuminuria, the relic of a previous attack of influenza.

Even in these case-hardened days it would be difficult to find a parallel to such a combination of misfortunes, and we are proud to believe that our appeal will evoke a generous response from all branches of the profession. A committee is in process of formation, and several generous donations have already been received. Cheques and postal orders should be sent to the Treasurer, Simmins Appeal Fund, and addressed, Royal Northern Hospital, Holloway Road, N.7.

WILLIAM HALE-WHITE. HENRY C. SEMON.
JAMES PURVES-STEWART. DAVID NABARRO.
G. F. STILL.

The following is a preliminary list of subscriptions:

*£50.*—Dr. G. F. Still.

*£10 10s.*—Mr. L. E. Barrington Ward, Mr. H. Tyrrell Gray, Sir William Hale-White, Sir James Purves Stewart, Dr. H. C. Semon, Mr. G. E. Waugh.

*£10.*—Mr. H. A. T. Fairbank, Dr. F. J. Poynton.

*£5 5s.*—Mr. J. Birt, Dr. R. S. Frew, Sir Alfred Fripp, Dr. C. B. Heald, Mr. T. T. Higgins, Sir W. Arbuthnot Lane, Dr. D. Nabarro, Dr. W. J. Pearson, Dr. H. R. Phillips, Dr. H. Sington (first donation), Dr. H. Thursfield.

*£5.*—Mr. P. G. Doyne, Dr. A. M. H. Gray, Dr. B. Shires.

*£3 3s.*—Mr. A. T. Pitts.

# New South Wales.

[FROM OUR CORRESPONDENT.]

### A PSYCHIATRY CLINIC IN SYDNEY.

FOR some years past the idea of having a clinic at the Royal Prince Alfred Hospital for early cases of mental disorder has been under consideration. With the advent of Sir John Macpherson as the first professor of psychiatry in the University of Sydney, and the organization of this new department in connexion with the medical school, it has been decided to open an out-patient clinic for the treatment of early mental cases, and Sir John Macpherson is to attend and initiate the work. This clinic will be the first of its kind in connexion with an Australian general hospital, and no doubt it will be of great service in the teaching of medical students. In addition to this clinic at the Royal Prince Alfred Hospital, there is an institution at Broughton Hall, Leichardt, where incipient mental and functional nervous diseases are treated. This hospital contains 100 beds, and patients are admitted without certification. Sir John Macpherson also visits this institution in the capacity of consulting physician. The laboratory of the mental hospitals is at the medical school, which is in close proximity to the Royal Prince Alfred Hospital, so that the clinical and pathological work of the clinic can be well co-ordinated.

### PROPOSAL TO CLOSE A NERVE HOSPITAL.

For several years past the Russell Lea Nerve Hospital has been carried on under the Red Cross Society, and later under the Repatriation Department, as a hospital for cases of nervous and mental weakness among the returned soldiers. Other rest homes and hospitals have been gradually closed down, and the work amongst the returned soldiers has been concentrated at the Prince of Wales's Hospital at Randwick. It was recently proposed to close down Russell Lea also, and transfer the patients to the hospital at Randwick. This proposal has aroused a great deal of comment, and the patients who are at present inmates there, to the number of about forty, have made their wishes known. There is no doubt that this institution is admirably situated; the hospital has large airy wards, a spacious dining hall, with gymnasiums, treatment and recreation rooms; the main building is surrounded by large grounds and is well suited for the treatment of the nervous and depressed soldier. Great stress has been laid on the individual treatment of the patients, and it is said that this could not be carried out at Randwick. In view of the opposition to the proposal it has been decided to defer any action for the present.

### RHODES SCHOLAR FOR 1923.

The Rhodes Scholar from the University of Sydney for 1923 is Mr. R. L. Raymond, who is now in the final year of the medical curriculum, and will graduate next month. This makes the fourth medical Rhodes Scholar from the University of Sydney, Mr. Raymond's predecessors being Drs. H. K. Ward, Howard Bullock, and Granville Waddy. He was educated at the Sydney Grammar School, and after passing his first year in medicine with credit, enlisted for active service, joining the University Company, which, however, was disbanded shortly afterwards on the signing of the armistice. He has passed each of his subsequent examinations with credit. His sporting achievements, mainly on the football field, have been brilliant, and he has entered prominently into the student life of the University.

### UNIVERSITY STUDENTS.

The official figures for the past year show that there were in attendance at lectures 2,965 students, including 706 women. Numerically the medical faculty is still on top, although the number of first year students is declining year by year. The largest years are the present fourth and fifth years, largely due to the fact that these students commenced their course in 1919 and 1920, when the effect of the return of students who had served with the Australian Imperial Force was felt. There are in all 870 students in the Faculty of Medicine, more than 200 above the number in the Faculty of Arts. Only three in the Faculty of Medicine are engaged in post-graduate work.

# Canada.

### CANADIAN MEDICAL ASSOCIATION.

THE Canadian Medical Association will hold its annual meeting in Montreal this year from June 12th to 14th. The committee appointed to investigate the advisability of establishing a College of Surgeons in Canada will present its first report at this meeting.

### HONORARY DEGREES.

At the Medical Convocation at McGill University on June 11th honorary degrees will be conferred upon the four following surgeons:

Colonel Sir WILLIAM TAYLOR, K.B.E., because of his distinguished position in the surgical world to-day; his many contributions to surgical literature and the advancement of surgical science; and his service to his country during the great war.

Sir BERKELEY MOYNIHAN, Bt., K.C.M.G., C.B., on the ground of his eminent position as a professional teacher of surgery; his many contributions to the advancement of surgical science, and to the literature of this subject; and his war work as chairman of the Medical Advisory Board.

Sir ROBERT JONES, K.B.E., C.B., in recognition of his position as the foremost orthopaedic surgeon in the Empire; his work in the war as a member of the Advisory Board to the War Office, and a member of the Consultants' Council; and his numerous contributions to surgery, especially military orthopaedic surgery.

Dr. W. J. MAYO, D.Sc., Hon. F.R.C.S.Eng., because of his distinction as a surgeon, his contributions and assistance to medical education and research, and his many contributions to surgical literature.

### INDUSTRIAL MEDICINE.

During the past winter a series of luncheon lectures on industrial medicine was arranged by the governors of McGill University in order to emphasize the value of this important branch of medicine. The complete course was as follows: Industrial medicine, by Dr. B. L. Wyatt, director Laurentide Health Service; Periodic health examination in industry, by Dr. Haven Emerson, Columbia University, New York City; Industrial sanitation, by Dr. George C. Whipple, Harvard University; Industrial health from the standpoint of tuberculosis, by Dr. Linsly Williams, National Tuberculosis Association; The physician in industry, by Dr. W. A. Sawyer, medical director, Eastman Kodak Company.

# Scotland.

### HOSPITALS AND NURSING IN THE HIGHLANDS.

A MEETING, presided over by the Duchess of Atholl, was held last week at Inverness to discuss proposals for co-ordinating the work of the voluntary hospitals in the northern Scottish counties and the relations between the hospitals and various other agencies such as nursing. The attendance was representative of hospital and nursing bodies all over the Highlands. Suggestions were made for the foundation of a federation of the various voluntary institutions, and it was stated that such a scheme had already been carried out in Perthshire. Exceptional difficulties were met in the Highlands, and it was important to further co-operation between the hospitals there in order to safeguard their economic position in the future. The local representatives were instructed to take stock of the position in order to avoid any waste of effort or of bed accommodation, and to consider means of taking joint action when appealing to the public for support. Dr. Simpson (Golspie) said that cottage hospitals might be regarded as casualty clearing stations, but surgical cases which could quite well be treated in them were sent sometimes to the larger hospitals at needless expense. The statement that no scheme of co-operation should be allowed to interfere in any way with the administration of the hospitals by the present administrative bodies was warmly applauded. It was resolved that meetings should be called in Inverness-shire and Ross-shire respectively to discuss hospital co-ordination in these counties.

### HERIOT'S SCHOOL MEMORIAL.

There was unveiled last week in the grounds of George Heriot's School, Edinburgh, a memorial to 470 former pupils who fell in the war. The memorial stands in the centre of

the green slope to the east of the school building and facing the Royal Infirmary; it consists of a graceful column in the form of a Mercat Cross 40 feet high standing on an octagonal stone platform reached by steps. The unveiling ceremony was performed by Lord Provost Hutchison.

### A MEDICAL DYNASTY.

Dr. A. Maxwell Adams, formerly of Gambia and of Assam, now of Alfreton, Derbyshire, is Dr. Maxwell Adams *quartus*. His great-grandfather, who was (medically) *primus*, lived in Scotland, and not only practised medicine, but also, about eighty years ago, edited a newspaper, and for three years (1847–50) held the non-medical office of chief inspector of poor for the parish of Glasgow, at a time when, after the Irish famine, there was a great influx of Irish from their own land to the West of Scotland, and epidemic typhus and cholera raged almost unchecked. Dr. Adams *primus* did what very few medical men have done either then or now: he kept a regular diary, amounting indeed to an autobiography, and in the columns of a Lanarkshire newspaper his great-grandson has been giving an account of his ancestor's career. Newspaper editing and Poor Law administration were far from sufficient to absorb his energies. He took an active part in a famous succession case in support of an unsuccessful claimant to the Crawfurd estates and titles in 1828–36. In his Glasgow Poor Law days he waged a constant battle with his local authority, and with the support of the old (at that time the new) Board of Supervision he achieved a great measure of success, winning, incidentally, two lawsuits out of three against the Parochial Board; in the third, though technically defeated, he was complimented by the court on his conduct in a very difficult position, and was not mulcted in expenses. When he had fairly got the better of his nominal superiors, he concluded that he would like an easier life, and they, being glad to get rid of so masterful a servant, acceded to financial terms which met his wishes. Shaking the dust of Glasgow off his feet he resumed practice in Edinburgh, was very successful and spent the last ten years of a strenuous life in comparative affluence and comfort. His present namesake has done well to put on record the story of so interesting and varied a career, and to reproduce it as a neat little pamphlet for private circulation.

## Ireland.

### SCHOOL MEDICAL INSPECTION.

WITH reference to the address by Sir James Craig, M.D., to the Teachers' Congress on medical inspection and treatment of school children (see BRITISH MEDICAL JOURNAL, April 14th, p. 653), a representative of the *Freeman's Journal* obtained the following statement from the Ministry of Local Government:

"We have read through the paper of Sir James Craig and consider that, generally speaking, it is a very fair statement of the requirements necessary for the development of the public health service. Practically all the matters that have been referred to are at present being examined by the Ministry's experts in these matters, and the Ministry have taken steps to acquaint themselves fully with the conditions of legislation on health matters on the Continent and America. The Ministry share particularly the view of Sir James Craig as to the important rôle to be filled by the county medical officer of health, and consider that the importance of appointing a suitably experienced officer could not be overestimated. As regards the regulations for school medical inspection, these at present include a provision that each committee shall include one manager and one teacher of an elementary school situate in the area of operations. The desirability of close co-operation with the Ministry of Education is fully appreciated, and it is recognized that inspection should be carried out with as little disturbance as possible to the school arrangements. As regards the question of the central authority, it may be observed that the Ministry of Local Government at present includes all the important functions of the Ministry of Health in England. If any further unification is needed it can, no doubt, be easily added in the forthcoming legislation.

"Sir James Craig stated that the Irish people were very far behind any other civilized nation in their attitude and their requirements with regard to public health matters. It is an encouraging reflection, however, that water supplies have been provided for nearly all the important towns. Typhus fever, formerly a great scourge in Ireland, has been practically eliminated, and the mortality from typhoid fever has in recent years been greatly reduced. Within the last four years, when small-pox was prevalent in Glasgow, cases reached Ireland on eleven different occasions, but, owing to supervision at the ports and the effective immediate isolation of cases, only in one case did the disease spread to a second house. Since the introduction of tuberculosis schemes the mortality from tuberculosis has been reduced from 2.8 per 1,000 to 1.8 per 1,000. Voluntary nursing associations and the activities under maternity and child welfare schemes have reduced infant mortality from above 100 per 1,000 to 85 per 1,000. The Electoral Act and the Local Government (Temporary Provisions) Act have now been passed, and the Minister of Local Government will be enabled to give attention to the formulation of the Public Health Bill."

## Correspondence.

### AURICULAR FLUTTER SIMULATING DEATH.

SIR,—In the *Epitome of Current Medical Literature*, par. 302, April 7th, 1923, an account is given of the restoration of two patients whose hearts were said to have stopped beating, and it is stated that they recovered after an intracardiac injection of adrenaline. For a long time I have suspected that in these cases the heart has not really stopped, but has taken on an abnormal rhythm, probably of the nature of auricular flutter. We know that adrenaline is a powerful stimulant, but it must get to the part before it can stimulate it. The mere injection into the heart when standing still would not enable the adrenaline to get to the pace-maker of the heart—that is, the sino-auricular node. That can only, be reached by means of the vessels, and in these cases of recovery there can be little doubt that there was still some circulation.

I have the record of a patient who, after running to a train collapsed on getting into the carriage. He was taken out at the next station and laid out in an inn as dead, as the doctor could find no evidence of life. After a couple of hours he recovered. He suffered from other attacks which I recognized as auricular flutter. I was summoned to see him in an attack and this diagnosis was confirmed. In auricular flutter the auricle is beating about 300 a minute, and the ventricle, as a rule, responds only to every second auricular beat, so that usually the pulse rate is one-half the auricular rate. On rare occasions the ventricle may respond to every beat, when the output from the heart is so slight that it cannot be detected by the pulse, while there is an absence of the sounds of the heart.

A classical instance is that of the greatest of clinical observers, John Hunter. Feeling ill, he happened to glance at a mirror and saw his face was very pale. He felt his pulse, and it had gone. He recognized that he was not breathing and had no desire to breathe, so he breathed voluntarily for some time until his pulse was restored. I have always looked upon this as probably a case of auricular flutter.

I think it is Leonard Hill who states that the complete cessation of the circulation for more than one or two minutes irreparably damages the central nervous system, but that the merest trickle of blood is sufficient to prevent this damage.—I am, etc.,

St. Andrews, Fife, April 12th. J. MACKENZIE.

### AN OUTBREAK OF RELAPSING FEVER.

SIR,—We wish to place on record an outbreak of relapsing fever observed at Accra during the present month, without for the present entering into the question of its origin.

The first case occurred in an Italian, aged 25, who had been continuously resident in the Gold Coast Colony for two and a half years. He was admitted to hospital with high fever late on March 15th, and very numerous spirochaetes were found in the peripheral blood the next morning. Following close on this case seven others were diagnosed in Africans at the African Hospital. The first of these was admitted comatose and collapsed on March 12th, and diagnosed during a febrile attack a week later. The second was admitted on March 20th, and diagnosed like the first African case a week later. Five more cases occurred, ending with three on March 29th: all these were diagnosed on admittance.

In all cases spirochaetes were demonstrated in the peripheral blood during a febrile attack. The organism corresponds morphologically to *S. duttoni*, and Cox Ingram, at the Medical Research Institute, is carrying out the work necessary to secure the strain. The cases will be recorded at length later.—We are, etc.,

G. E. H. LE FANU, W.A.M.S.,
A. J. R. O'BRIEN, W.A.M.S.

Accra, March 31st.

## INTRACAPSULAR EXTRACTION OF CATARACT.

SIR,—May I be permitted to correct a slight inadvertence in Lieut.-Colonel Lister's interesting letter (April 7th, p. 612)? The mode of intracapsular extraction selected for the case to which he so generously refers, and in which retro-ocular haemorrhage had to be guarded against, was not Colonel Smith's. That would have been the least suitable since it requires greater pressure upon the globe than any other mode of extraction, and the pressure is followed by rapid relaxation, the effect of which upon brittle blood vessels could not but be dangerous. I have the greatest admiration for Henry Smith's operation in its proper place, and am glad to acknowledge indebtedness for his invaluable teaching, but in my case, cited by Colonel Lister, a different procedure from Smith's was adopted, for the lens was looped out entire by my fine wire loop attached at right angles to a short stem, a mode by which intracapsular extraction is effected without pressure upon the globe.

The case reported was one of four private patients on each of whose remaining eye I practised intracapsular extraction, with good result, after the first eye had been lost, elsewhere, in such good hands that a repetition of the ordinary operation would have presumably invited a similar disaster. The remarkable immunity of intracapsular extraction from post-operative irido-cyclitis makes it, to my mind, the operation of choice whenever the first eye has been lost by anything of that kind, or by needling. After retro-ocular haemorrhage, however, it is not to be recommended, unless, as in the case under consideration, the danger of cyclitis is greater still.—I am, etc.,

ERNEST E. MADDOX, M.D., F.R.C.S.Edin.

Bournemouth, April 11th.

## THE COOLIDGE X-RAY TUBE.

SIR,—I have used the Coolidge type of *x*-ray tube almost exclusively since the beginning of 1914, and with every satisfaction until recently. I now find that I can no longer depend upon these tubes to carry out the work for which they are designed. It has been the justifiable boast of the makers that these tubes could be so regulated as to give the desired output of a particular type of *x* ray. During the past nine months, however, it has been my unfortunate experience to obtain tubes which will not "stand up" against a high voltage current. The reason appears to be that occluded gas is left in the tube which during work becomes hot and so sets free the gas; the tube then takes on some of the characteristics of a "gas" tube, showing green rings around the circumference, and being totally useless for further work until cooled down; even then the same thing happens again as soon as the tube is heated up. This I have found to occur with new tubes and with so-called replacement tubes. Previously a standard Coolidge tube would run for one and a half to two hours or longer at a parallel spark-gap of 10 in. and with a current of 10 milliampères passing through the tube, without causing any trouble or anxiety.

It appears to me that the only way out of the difficulty at present would be to have a certificate from the National Physical Laboratory stating that a particular tube has passed the requisite tests. If all users of these tubes will agree to accept no tube without this certificate, manufacturers will cease to produce anything but the best.—I am, etc.,

W. M. ROBSON, M.D., F.R.C.P.Lond.

Northampton, April 13th.

## VOMITING AFTER DEEP X-RAY THERAPY.

SIR,—The obstinate and most distressing vomiting which so frequently occurs after and often during the prolonged application of deep *x*-ray therapy, especially when it is applied to the thorax or upper abdomen, has been one of the most trying concomitants of the treatment.

Whatever the cause may be—whether due to direct irritation of the stomach or of the vomiting centre by the changed condition of the blood brought about by the rays—there is obviously gastric irritability, and it seemed to me to be probable that the administration of chloretone would be of benefit. The results, so far, have been satisfactory, and others, practising this form of treatment, may be glad to try it.

I give castor oil the afternoon before the treatment and an enema next morning. The patient takes a light breakfast of tea and toast and butter an hour and a half before coming for treatment, and soon after 10 grains (0.65 gram) of chloretone is administered. I endeavour to persuade the patient to do without lunch, but, if they feel they must have something, I give a cup of strong soup with a biscuit about 1 p.m.—that is, after about the first three hours—and also I give a further 5 grains of chloretone. About 6 or 7 p.m. a further 5 grains is given, and a drop enema of a solution of the exact saline constitution of the blood. (I have used "normosal," a German preparation, dissolved in the appropriate amount of water.)

Since adopting the above procedure I have treated eight cases:

One of epithelioma of the larynx (5 hours); no nausea or vomiting.
One of cervical carcinoma (6 hours); no nausea or vomiting.
One mediastinal tumour (6 hours); no nausea or vomiting.
One malignant prostate (4½ hours); no nausea or vomiting.
Four scirrhus (7, 6½, 5½, 5½ hours respectively). One patient vomited once during the night after the treatment, the others not at all.

The first case on which I tried the chloretone was one of tumour of the cervical region of the spinal cord, with intense pain. This patient had had morphine and hyoscine for some time before the treatment. I only gave the 10 grains in the morning, and the patient, who had four hours' application of the rays, had no vomiting during the treatment, but did vomit intermittently for two days. Had the chloretone been continued this would not, I believe, have occurred.—I am, etc.,

J. CURTIS WEBB,
Hon. Radiologist, Gloucester Royal Infirmary.

Cheltenham, April 5th.

## THE TRAINING OF NURSES IN COTTAGE HOSPITALS.

SIR,—I would like to draw attention to the training of nurses in cottage hospitals. According to the regulations of the General Nursing Council the teaching and experience of probationers in these institutions is not, and cannot be, recognized for admission to the Register; it is true that there is a clause in the scheme under which two or more small hospitals may work together to furnish the necessary requirements, but under the conditions required this is not, except in very few instances, practicable.

It is unfortunate, for many reasons, that all the training of nurses in our small hospitals should, so far as registration is concerned, be wasted. I have no information of the number of these probationers, but as they serve about 4,000 beds the number must be very considerable. Although they receive no lectures or routine instruction from members of the staff, there can be no doubt that the training is of very real value; it is essentially practical. Their work involves a larger amount of responsibility than is the case in the big hospitals, and allows for a considerable degree of initiative; it is done under the more immediate supervision of the experienced medical staff, who, I feel sure, would confirm my opinion as to the effective value of the teaching.

These hospitals admit probationers at a younger age than the large hospitals; this, I think, is a great advantage—a girl is more teachable at that age, and, although she may then wish to take up nursing as a profession, she may alter her mind if her desire cannot be fulfilled for two or three years. Moreover, if she enters a small hospital, say, when she is 18 or 19, and finds that the work does not suit her or she is not suited to it, she has plenty of time to enter upon some other occupation.

To the cottage hospitals themselves some recognition of their training would be a great assistance, for the difficulty of obtaining probationers has, on account of the conditions now required for getting on the Nurses' Register, become a serious one; if a girl intending to become a nurse knows that two or three years spent at a small hospital will not only fill up the time until she can be admitted to a larger one but will also be counted as part of the three years' training required, she will naturally be more inclined to apprentice herself there than would otherwise be the case.

From the point of view of the larger hospitals themselves the acceptance of this training would mean that there would be a larger recruiting ground from which they could gather nurses; it would, too, provide them with a better opportunity of testing the suitability of and selecting their probationers, who also would be of more use to them than if entirely untrained, and the hospitals would not be troubled as they are at present with so many that are found quite unfitted for the work.—I am, etc.,

Bradford-on-Avon, March 24th. CHAS. E. S. FLEMMING.

## HOSPITAL POLICY.

SIR,—I note that an authority so distinguished and experienced in hospital work as Sir George Beatson[1] commences by expressly defining a voluntary hospital as one "supported by voluntary contributions." Moreover, he insists emphatically upon the necessity of voluntary—by which he means unpaid—service by the honorary staff, despite the fact that in his scheme no less than one-third of the entire expenses of the hospital would be borne by the patients themselves. Clearly, therefore, he has no sympathy whatever with that policy, promoted by Mr. Harman, which would claim for the staff a share in even the smallest individual contribution of the working man. Nor do I picture Sir George adopting the alternative inspiration of that fertile genius, and solemnly demanding of an astonished board of laymen at the Glasgow Western Infirmary that a "token" or "peppercorn" of—shall we say ninepence?—be for no conceivable purpose or reason annually divided among a staff of fifty-seven.

It is very evident from his letter of April 7th that, although dwelling in Glasgow and profoundly interested in the subject, Sir George Beatson does not even yet the least realize what the policy of Mr. Harman really is. There are many others in a like position. Could any more devastating comment be made upon the notion that this policy was adequately debated in December, 1920, or July, 1921? Plainly in the eyes of Sir George Beatson such a policy as that of Mr. Harman is so repugnant that he cannot imagine anyone would seriously entertain it. Dr. Flemming[2] attributes to me the dictum that, in the extremely unlikely event of the survival of this sickly bantling, which has remained in a condition of suspended animation ever since its premature and precipitate delivery at Newcastle, lay boards must receive payment. Anyone who looks up the reference given in my letter will there discover that Mr. Harman himself took me to task in his most superior manner for venturing to assume that these laymen would, under his revolutionary programme, remain unpaid, and at the same time introduced, in order to illustrate free and uncontrolled volition, that priceless analogy of the British soldier to which I referred.—I am, etc.,

Chichester, April 14th. G. C. GARRATT.

## ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

SIR,—The kind reference in your issue of March 24th to my questionnaire or skeleton scheme of annual health reports somehow seems to have missed the main point. The principle underlying the scheme may be described by the words "facts reduced to figures, and one figure one line." It was, however, not found feasible to adhere to the formula rigidly. With regard to regulated establishments a separate table is provided for each sanitary district. Further, while meant to be helpful to part-time medical officers of health and individual districts, the system is of most use in the case of a county or combined districts—that is, for compilation purposes—for the query need only be stated once, while the figures for the various districts, being all exactly opposite, can be added up in no time, giving the total for the whole area. The system can be extended to collating the figures for a group of counties—for example, the Welsh group, or the group forming England and Wales, or even larger combinations.

By demanding that every fact (in the form of a figure) should have one line (in a single district), or segment of that line (in a table comprising numerous districts), only facts of sufficient importance to warrant a line will be asked for. There are, however, other advantages, such as the securing of uniformity in presentation, economy in printing (by using stereotype plates) etc., but the proof of the pudding is in the eating, so I shall be pleased to send a copy of annual report for 1921 for a combined area of 20 districts to any medical officer of health on the receipt of six penny stamps to cover postage.—I am, etc.,

E. LLOYD OWEN,
Criccieth, April 10th. M.O.H. for South Carnarvonshire.

## TREATMENT OF PUERPERAL INFECTIONS.

SIR,—General practitioners like myself must have read Professor Watson's address at Edinburgh (March 24th, p. 505) with a great deal of astonishment. During the last twenty-five years my partners and I have had the care of a very considerable number of cases, and our practice has been never wittingly to allow a piece of placenta to remain in the uterus, and in case of serious doubt to make a digital exploration, and we have thought that the results have justified this practice. We cannot recall a single case where a piece has been retained and has not given rise to trouble.

Does the professor say that we have been wrong all the time? That we must revise our treatment and, despite our own experience, leave these things to Nature? Again, how large or how small a piece may one leave? Or does it not matter? And when one suspects a retained piece, for how long should one wait for it to come away? (One of us once waited four weeks.) Must the patient stay in bed the whole time? And if the patient should become gravely or fatally ill how should one explain one's inactivity to her friends? Finally, if Professor Watson were looking after the wife of a doctor friend would he himself dare to come downstairs and announce, cheerfully, that he had allowed a piece of placenta to remain in the uterus?

One cannot help wondering whether he has taken fully into account the very large percentage of cases where exploration is done at the time of confinement with a subsequent—I had almost said "consequent"—normal and uneventful puerperium. For in general practice this is the ordinary result even under surprisingly adverse conditions; so much so that one can say that the cases whose puerperium can be expected to give least anxiety are (1) those in whom no vaginal examination whatever has been made, and (2) those in whom the uterus is known to have been left completely empty at the time of the confinement.—I am, etc.,

Penge, S.E., April 10th. H. H. PHILLIPS.

## ARTIFICIAL LEGS.

SIR,—With reference to the note on the supply of artificial legs, in your issue of March 24th (p. 525), may one be permitted to ask what are the advantages of a "light metal limb" over a "proper wooden leg"?

There are approved artificial legs on the market lighter than "the light metal limb," and the lightest of them all that I have seen is a wooden leg. It is, as are many of the light metal limbs, in point of fact too light for all but a limited number of cases. But the fact that a wooden leg can be made for an above-knee amputation only 4 lb. 2 oz. in weight is a great advance, and it should not be very long before we see a properly balanced artificial limb—one, that is, with a very light foot and ankle and a relatively heavy bucket. We have frequently found that a pensioner in possession of two artificial limbs complains of the weight of one, which upon scaling has proved to be the lighter of the two.

It is to be hoped, therefore, that, now that the difficulty of dead weight as applied to artificial legs has been solved by the limb-makers, this question of balance will receive their attention, and it will be an interesting development to watch. The preference for a metal limb would appear to be based on other considerations than these, a discussion of which would be useful.—I am, etc.,

Altrincham, Cheshire, March 24th. F. A. HORT.

## INFECTION DURING INCUBATION.

SIR,—Surely it is an established fact that infectivity only begins with the period of invasion.

Once I was able to establish this in the case of mumps. Four pupils slept in one room at a seaside school. A developed mumps and was removed within an hour or two. B, C, and D were isolated in that room. On the twenty-sixth morning thereafter B was taken ill and removed. C and D remained isolated. On the twenty-sixth morning after that C developed the disease and in turn was removed. D did not fall ill and no other cases occurred in that school.

Thus twenty-six days was clearly shown to be the possible duration of the incubation period of mumps, and apparently it was proved that infectivity only began with invasion. I have persistently acted on this presumption in other zymotics and I cannot recall any disasters as the result.—I am, etc.,

London, E.C. A. OGIER WARD.

THE Spanish Cross of Commander of the Order of Alphonso XII has been conferred on Dr. Roux and Dr. Petit of the Pasteur Institute of Paris.

THE Congress of the German Dermatological Society will be held in Munich from May 20th to 23rd, when the general pathology, etiology, and treatment of eczema will be discussed. Papers will be read by Drs. Bloch, Kreibrich, Pinkus, and Riecke.

[1] *The Scottish Voluntary Hospitals* (John Smith and Son, Glasgow).
[2] BRITISH MEDICAL JOURNAL, March 31st, p. 574, and April 7th, p. 616.

# Obituary.

## ARTHUR LATHAM, M.A., M.D.OXON., M.A.CANTAB., F.R.C.P.LOND.,

Physician and Lecturer on Medicine, St. George's Hospital.

WE announce with much regret the death of Dr. Arthur Latham, which occurred on April 13th in a nursing home, after an illness of many months. His loss will be severely felt in several quarters. Latham's opinion on cases of intrathoracic disease, and especially of pulmonary tuberculosis, was highly valued and widely sought, and will be missed by the public and by the profession. The great insurance company to which he was chief medical adviser, St. George's Hospital, and the Federation of Medical and Allied Societies will all feel his loss sorely. The leading part he played in bringing to pass that amalgamation of societies in London which is now represented by the Royal Society of Medicine will never be forgotten. For the first five years of its existence he was honorary secretary to the Society.

At the time of his death Latham held, in addition to the posts alluded to above, those of advisory physician to the Throat Hospital, Golden Square, and to the York Road Lying-in Hospital. In former years he was assistant physician to the Brompton Hospital for Diseases of the Chest, physician to the Mount Vernon Hospital for Consumption, and assistant physician to the Victoria Hospital for Children, Chelsea.

Arthur Latham was born in 1867, his father being the well known physician of Cambridge, Dr. P. W. Latham, who is still alive and active though long retired from practice. The son was sent to school at Fettes College, Edinburgh, where he was recognized as a boy of unusual intelligence, and was also distinguished as a runner and half-back at Rugby football. From school Latham went to Balliol, Oxford, then under the aegis of the great Jowett. His academic career was brilliant; a first class in the final Natural Science Schools was followed by a Radcliffe Travelling Fellowship, a University Scholarship at St. George's, and a Research Scholarship of the Grocers' Company. During these early years Latham studied at Vienna, Heidelberg, and Berlin, and produced translations of Binz's *Lectures on Pharmacology* and Limbeck's *Pathology of the Blood*. Before his travels he had gained experience of university life at both the ancient English universities. His father at that time held the Downing professorship of medicine at Cambridge, and the son was accordingly entered at a Cambridge college, King's, although already a member of the sister university. Partaking of the education of both places, and meeting early in life the leaders in science at both universities, as well as being surrounded at home by an atmosphere that was both medical and scientific, were advantages that were not wasted on Latham. He imbibed naturally and as a matter of course a large amount of that knowledge which those less fortunately placed gain only by much greater effort. The present writer's earliest recollections of him are at this time, about 1890, at Cambridge, where he seemed to flutter about the work of the students at Addenbrooke's and in the University physiological laboratory like some elegant and interested butterfly that had already culled most of the scent from the fields of knowledge which his contemporaries were laboriously seeking to harvest. Latham always seemed to know more than the rest of us without having obviously learned it. As a matter of fact he was an extremely hard worker at anything which interested him. Gifted, however, with a natural aptitude for detecting essentials he was able to save himself much time which a less intelligent student wastes where it is of little service. Moreover, the natural trend of his mind was scientific, logical, and orderly. In addition, he had an unusual power of rapidly acquiring knowledge, and a good memory.

Latham's hospital career did not disappoint the promise of earlier days, and after holding a house appointment and the post of curator to the museum and demonstrator of pathology he was elected assistant physician to St. George's in 1898. A little later he acted as dean of the medical school for some years. In his early years as a physician he was a close friend of, and was greatly helped and encouraged in his work by, the late Herbert Allingham. It was indeed largely at Allingham's instigation that he entered the competition for a prize offered by King Edward VII for the best essay on the erection of a sanatorium. Gaining the first place in this competition definitely settled the trend of Latham's medical work, brought his name into wide public notice abroad as well as in Great Britain, and may well be regarded as the foundation stone of a success which, nevertheless, all his friends knew must befall him sooner or later. The way in which Latham worked for that prize was characteristic of his efforts when his interest was aroused by any project. A room in the house where he lived at that time was devoted entirely to the furtherance of his work in the competition. No book or pamphlet that he could hear of or lay hands on that bore directly or indirectly on the subject was absent from this room. Latham gave himself to the work with untiring pertinacity and with the liveliest intelligence. It seemed not so much the writing of an essay as the organization of an exposition of everything that could possibly be worth saying on the subject of the competition. To his friends who understood the method of his work the only surprise would have been his failure to receive the first prize. It was in the same manner and urged by the same fiery spirit of endeavour and determination that in later years Latham did so much to further movements in which he took part. Latham was possessed of qualities which gave him great influence when he took sides in any project or debate. These qualities were courage, initiative, and the gift of lucid and impressive speaking in public. On any committee or like body where Latham served it usually happened that if he formulated a scheme or definitely supported one, that scheme was brought to fruition. It is not possible for a man who had Latham's taste for struggle and argument not to meet with opposition and to make enemies. He did both—without ever losing either his courage in face of difficulties or his inbred courtesy of demeanour in the face of his opponent. His gift for rapidly grasping the essential details of any proposition and for clearly expounding them to others made it seem probable that had the Law instead of Medicine been Latham's choice he would have had at least as great a success. He would have made in many respects an ideal medical member of Parliament. He was greatly interested in the question of the representation of medicine there and it was partly with the view to strengthening this representation and to aiding the present medical members that with one or two others he founded the Federation of Medical and Allied Societies. In his purely professional work Latham was valued as a consultant for the definiteness of his opinion and for his ready reading of character and understanding of human nature. It was through these qualities that many of his patients valued his advice on other as well as on medical matters. Without appearing to be in the least a soft-hearted man he was capable of great attachment, and he performed many acts of charitable kindness to those who needed them. To medical literature Latham's chief contributions were his book on *Early Diagnosis and Modern Treatment of Pulmonary Consumption*, which is in its fourth edition, and a *System of Treatment* which he edited with Mr. (now Sir Crisp) English. Recently he was acutely interested in the relationship between asthma and sensitization to foreign proteins, and was projecting a book on the subject in collaboration with Mr. Frank Coke, and together they had published an account of 270 cases (*Practitioner*, August, 1922). Latham's last illness prevented further work on the book from him.

Some may remember Latham in the future for his cynical comment on or drastic condemnation of their ideas which did not appeal to him. More will remember him for the clear and courageous way in which he upheld movements that he thought right and desirable. Those who knew him well will hold his memory dear for the unselfish devotion which spared and counted no effort where the welfare of those he loved was concerned, for the ready generous and lavish hospitality which he spent upon his friends, and for the zest and sense of humour with which he enjoyed the pleasures and endured the trials of an active life. His was an energetic, aspiring, and restless nature. It was granted to him to achieve much of the great objects at which he aimed, but not to reap the quiet happiness which descends with age on less ambitious spirits.—J. B.

We are indebted to Sir John MacAlister for the following appreciation:

I know that others will be able competently to testify to Dr. Arthur Latham's ability and eminence as a physician, and to his special knowledge of everything relating to pulmonary tuberculosis; but I am glad to be allowed to testify to the valuable work he did for the profession, and for the Royal Society of Medicine in particular in connexion with its amalgamation. Very fortunately for the amalgamation, Sir Richard Douglas Powell, then President of the Society, selected Dr. Latham and Mr. Pendlebury as honorary secretaries of the Organizing Committee literally within a few

days of his receiving my scheme for the amalgamation, and it would be impossible to exaggerate the enthusiasm with which Dr. Latham and his colleagues threw themselves into the work; but neither they, nor even myself, had any idea of the amount of work and worry that this labour would entail—endless committees and innumerable reports occupied over two years of devoted work. They never spared themselves, and I fear often neglected their own professional interests for the sake of the great idea which possessed them. I vividly remember one night (or was it morning?) I had to see them at a critical moment, and, late as it was, found them hard at work on their knees dealing with a mass of papers and reports spread on the floor for easier comparison, as no table was large enough to hold them. Much of the work must have been a tremendous tax on Latham's temper, for points that seemed to be settled were continually being re-raised, until at last he had the satisfaction of having the scheme practically unanimously adopted by the large meeting convened by Sir William Church, Chairman of the Organizing Committee, held in the Royal College of Physicians. But even that did not end his work for the Society. Under its new conditions, when it received the recognition of the late King Edward VII in the form of a supplementary charter, it had to be guided into its new ways; and when the new council, very shrewdly, decided that Dr. Latham and Mr. Pendlebury should be the first honorary secretaries they loyally accepted the duty. Latham's keen brain and zeal proved invaluable, and he stuck to his new post for five years. His tragic and unexpected death makes now impossible what was intended, that he should have received the highest honour within the gift of the Society—namely, to be enrolled as an honorary Fellow of the Society.

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### JOHN CAMPBELL MACLEAN, M.B., C.M.,
Surgeon, Victoria Hospital, Swindon.

THE death of Dr. J. Campbell Maclean removes one of the most outstanding practitioners of the West of England. Dr. Maclean was born at Tobermory in the Island of Mull in 1846, and was the son of the Rev. Peter Maclean. He graduated M.B., C.M. at Edinburgh in 1868, and began practice at Swindon in 1869. For forty years he was medical officer for the Swindon and Highworth Union. His sympathy and help were always at the disposal of the poor, and the writer recalls many instances of his gratuitous attention to his old Poor Law patients right up to the end of his career. Of striking and handsome personality, he was to be seen commencing his rounds in an extensive country practice every morning punctually at 9 o'clock, winter and summer alike, and in the London season he journeyed up to town one day every week for the convenience of his county patients. Vigorous in mind and body despite his 77 years, he worked with the spirit of a boy right up to the last, and, although suffering some optical disability after removal of cataract, he availed himself of every opportunity to extend his knowledge and keep himself abreast with the modern developments and technique of clinical medicine. During the pandemic of influenza in 1918, when the medical resources of the town were strained to their uttermost capacity, he cheerfully offered his services to the Great Western Medical Fund Society, and took over a share of their work gratuitously. In recognition of these services he was afterwards presented with a gold watch and chain.

In his younger days Dr. Maclean was an excellent shot, a splendid horseman, and was instrumental in establishing one of the first polo clubs outside Hurlingham. He was a good cricketer, a fisherman, a swimmer, and a yachtsman, but in later years boxing appealed to him most, and he did much locally by his patronage to encourage and foster every form of clean and honest sport. He was singularly modest and unassuming. A charming host and a pleasant companion, he will be remembered by all who enjoyed the privilege of his friendship. A very eminent Freemason, he held Grand Lodge honours in the craft and corresponding rank in the Royal Arch Chapter and Mark Masonry, and in his earlier days he was much in demand at installation ceremonies owing to his knowledge of the work.

Within a week of his death he gave evidence at an inquest and in the evening attended the annual boxing show. On the following day he was suffering from a cold, pneumonia supervened, and, despite the unremitting attention of his colleagues, he passed peacefully away. The funeral took place on April 6th, in the presence of an immense concourse.

Dr. Maclean celebrated his golden wedding on July 4th, 1921. He is survived by his wife and a daughter.

W. F. J. W.

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## Universities and Colleges.

### UNIVERSITY OF CAMBRIDGE.

DR. G. S. GRAHAM SMITH, F.R.S., has been appointed Reader in Preventive Medicine for a period of four years.

The plan for the next final examinations for medical and surgical degrees has now been issued. Part I of the third M.B. examination (surgery, midwifery) begins on June 12th, and ends on June 16th; Part II (principles and practice of physic, pathology and pharmacology) begins on June 13th, and ends on June 20th. The M.Ch. examination will be held on June 12th, 15th, and 16th. The certificates and examination fees of candidates, accompanied by their postal addresses, must reach the Registrary by Saturday, May 12th.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY Council was held on April 12th, when Sir Anthony Bowlby, President, was in the chair.

The President reported that the vacancy in the Court of Examiners would be filled at the next meeting of the Council on May 10th.

*Jacksonian Prize.*—This prize for 1922 was awarded to Mr. Sidney Forsdike, F.R.C.S., B.S., M.D., the subject being "The effects produced by radium on living tissues, with special reference to its use in the treatment of malignant disease." The following subject was selected for the Jacksonian Prize for 1924: "The pathology, diagnosis, and treatment of œsophageal obstruction."

Mr. Douglas Gabell was elected a Member of the Board of Examiners in Dental Surgery.

The following Members of twenty years' standing were elected to the Fellowship: John Howard Mummery, Surgeon Vice-Admiral Sir Robert Hill.

Sir Arthur Keith was elected Vicary Lecturer for the ensuing occasion.

### CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examination indicated:

FINAL EXAMINATION.—*Medicine:* H. P. Sen, Wilhelmina C. Storrie, Ruby S. Beveridge, Eliazar Gelfer, D. G. Coutts, Martha D. Devon, M. N. Gelb, G. A. P. McConey, D. R. Nicol. *Surgery:* C. A. Paulusz, M. N. Gelb. *Midwifery:* T. F. Kelly, Ruby S. Beveridge, C. A. Paulusz, W. E. Haydon, Martha D. Devon, G. A. P. McConey, T. J. Muir. *Medical Jurisprudence:* J. A. McJann, J. S. Whiteside, J. McAuley, Anna G. Laubscher, D. M. Safwat, Eliazar Gelfer, H. V. R. McKinlay, A. W. H. Noble, J. Ryan, L. McLean, Mary C. Semple.

The following candidates, having passed the Final Examination, have been admitted L.R.C.P.E., L.R.C.S.E., L.R.F.P. and S.G.:

J. M. McLintock, Minnie E. McMurray, J. M. Cockburn, B. Lal Chopra, N. J. Laubscher, W. N. Stirling, G. A. W. Wickramasuriya, D. Maximos, D. J. Dubash, E. R. C. Walker, P. G. Bainbridge, W. Paris, J. J. du Pre le Roux, J. H. Murrell, S. J. Reich, D. K. Sabhesan, E. Levine, L. Jaffit, J. J. Mann, D. V. Walpola, J. S. Bizzett.

### CONJOINT BOARD IN IRELAND.

THE following candidates have been approved at the examination indicated:

FINAL PROFESSIONAL.—T. A. Austin, A. P. Brown, Josephine A. Carson, M. Cremin, Victoria E. Davidson, Evelyn S. Delany, J. F. Devlin, D. A. T. Eaton, I. J. Eppel, T. V. Fitzpatrick, S. G. Gilmore, A. J. Harte, M. J. O'Riordan, R. D. Scale, V. F. Walsh.

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## The Services.

### R.A.M.C.—EXAMINATION FOR COMMISSIONS.

THE War Office announces that an examination for not less than twenty commissions in the Royal Army Medical Corps will be held on August 1st, 1923. Applications to compete should be made to the Secretary, War Office, not later than July 20th. The presence of candidates will be required in London from July 30th. Prospective candidates can obtain a full statement of the duties and emoluments of the service on written application to the Secretary (A.M.D.I.), War Office, Whitehall, S.W.1.

### AUXILIARY R.A.M.C. FUNDS.

THE annual general meeting of the subscribers to the Auxiliary Royal Army Medical Corps Funds will be held at 11, Chandos Street, W.1, on Friday, April 27th, at 4 p.m., when the financial statement for 1922 will be presented and the officers for the ensuing year elected.

### DEATHS IN THE SERVICES.

Brigade Surgeon Edwin Clement Bensley, Bengal Medical Service (retired), died suddenly in London on March 20th, aged 86. He was educated at St. Thomas's Hospital, and took the M.R.C.S. in 1858, and the L.R.C.P.Edin. and F.R.C.S.Eng. ten years later. Entering the I.M.S. as assistant surgeon, in the Company days, in

1859, he became surgeon major in 1873, and retired with an honorary step of rank as brigade surgeon in 1885. The whole of his service was passed in civil employ in Lower Bengal, where he held for many years the important civil surgeoncy of Rajshahai. He was the author of a small work on *The Diarrhœa of Infants in India*, published in 1867. Several members of his family have served in the I.M.S.; the late Surgeon Major C. E. W. Bensley was his brother, Colonel C. H. Bensley is his son, and Lieut.-Colonel C. N. Bensley his nephew.

Lieut.-Colonel David Claude Kemp, I.M.S.(ret.), died of angina on April 3rd, aged 51. He was born on June 8th, 1871, the eldest son of the late D. S. Kemp, F.C.S., and educated at University College, London, taking the diplomas of L.R.C.P.Lond., M.R.C.S. Eng., and L.S.A. in 1896. He went out to India in 1898 as a special plague officer, and entered the I.M.S. as lieutenant on January 28th, 1899, becoming lieutenant-colonel after twenty years' service, and retiring on October 22nd, 1921. Most of his service was spent in civil employ in Madras, where he was for several years resident medical officer of the Madras General Hospital. He served in the late war, and in 1914–15 was specialist in advanced surgery in the Kitchener Hospital for Indian troops at Brighton.

# Medical News.

THE annual meeting of the Royal Medical Benevolent Fund will be held at the Royal College of Physicians, Pall Mall East, S.W., on Monday, May 7th, at 4 p.m., when the annual report and financial statement for 1922 will be presented and the officers and committee for the current year elected.

A COURSE of lectures on pathological research in its relation to medicine has been arranged for the summer session at the Institute of Pathology and Research, St. Mary's Hospital, W.2. The lectures, which will be delivered in the Lecture Room of the Bacteriological Department of the Institute on Thursdays at 5 p.m., commence on April 26th, when Sir Almroth Wright will discuss the principles of medical research. The lectures are open to the medical profession and to all students in medical schools without fee.

IT is announced that Sir Charles Brown of Preston has given £800 to the Harris Orphanage, Fulwood, Lancashire, to which he is consulting physician. In offering the gift Sir Charles Brown said that he was prompted to make it during his lifetime by the desire to add to his own happiness by seeing the benefit which will result to the children. The gift will enable the council to purchase a house in Lytham which has been occupied for some seven years as a seaside home for sick and convalescent children of the orphanage.

DR. MILLAIS CULPIN will give a course of ten lectures on psycho-neuroses at the London Hospital Medical College on Tuesdays and Fridays at 5.15 p.m., commencing on May 1st. The fee for admission to the course is £1 1s.

A DISCUSSION on some problems in the lighting of printing works will be held at a meeting of the Illuminating Engineering Society at the house of the Royal Society of Arts on Tuesday, April 24th, at 8 p.m.

AT the meeting of the Tuberculosis Society to be held on Monday, April 23rd, at 8 p.m., at the Margaret Street Hospital, Dr. A. K. Chalmers, M.O.H. for Glasgow, will read a paper on housing and tuberculosis.

A COURSE of six post-graduate lectures on ante-natal care will be given by Professor A. Louise McIlroy at the London (Royal Free Hospital) School of Medicine for Women, Hunter Street, Brunswick Square, W.C.1, on Tuesdays at 5 p.m., commencing on May 1st. Admission is free to medical practitioners and post-graduate students.

THE Association of Public Vaccinators of England and Wales will hold a dinner at the Hotel Cecil, Strand, W.C., on Friday, April 27th, at 6.30 for 7 p.m.

A SPECIAL course of lectures and demonstrations has been arranged by the London University Extension Board and a committee of the International Society of Medical Hydrology. It will be held at the University, in laboratories in London, and at two of the British spas, from May 29th to June 4th. Full particulars will be announced later.

FROM the statement issued by the India Office on April 13th regarding the prevalence of plague in India it appears that during the six weeks ending March 31st there were 48,041 deaths. The mortality was highest in Bihar and Orissa, United Provinces, Punjab, and Delhi. Special measures have been taken to encourage inoculation and rat destruction in Delhi Province, which is administered by the Government of India, and the population of Delhi are reported to be coming forward readily for inoculation.

AT a meeting of the Association of Economic Biologists, to be held in the Botanical Lecture Theatre of the Imperial College of Science, Prince Consort Road, S.W.7, on April 27th, at 2.30 p.m., Dr. C. M. Wenyon will read a paper on some recent observations on pathogenic protozoa of plants and animals.

THE Automobile Association states that its attention has been drawn by the authorities to the insufficient illumination of number plates on motor vehicles. The Regulations do not prescribe the distance from the car or motor cycle at which the index mark and numbers should be readable after lighting up time, but in their own interests all motorists should satisfy themselves that their lighting arrangements are so contrived that—as required by the Regulations—every letter or figure on the illuminated identification plate is rendered "easily distinguishable."

A COURSE of eleven lectures on the management and feeding of infants and young children will be given by Dr. Eric Pritchard to qualified practitioners at the Infants' Hospital, Vincent Square, S.W., on Mondays and Thursdays at 6 p.m., commencing on April 26th. The fee for the course is two guineas, and those participating are entitled to attend the round-table consultations held by Dr. Pritchard at the hospital on Tuesdays and Fridays, and are also afforded opportunities of visiting the Nursery Training School, 3, Wellgarth Road, Golders Green, N.W., and the Home for Blind Babies, Chorley Wood, on Saturday afternoons at 3 o'clock.

PROFESSOR BORDET, director of the Brussels Pasteur Institute, has recently been presented by the King of Sweden with the Grand Order of the Polar Star.

A COMMITTEE has been formed to make arrangements to celebrate the 70th birthday of the well known Italian parasitologist, Professor Battista Grassi, by the establishment of a "Grassi Foundation for the zoological study of parasitic diseases." Subscriptions should be sent to the *Rivista di Biologia*, 27, Via della Dogana, Vecchia, Rome.

DR. NATTAU-LARRIER, a well known writer on tropical disease, has been nominated professor in the new chair of colonial studies and pathological protistology at the Collège de France.

# Letters, Notes, and Answers.

*As, owing to printing difficulties, the* JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

## QUERIES AND ANSWERS.

### THE NOTATION OF CORRELATION.

"H." writes: In reading reports such as those issued from the Francis Galton Laboratory for National Eugenics, and some of those published by the Medical Research Council on statistical matters, the ordinary reader is puzzled by some of the mathematical formulae used; for instance, in the Medical Research Council's Report on the relation between home conditions and the intelligence of school children, a subject in which many of us would like to take an intelligent interest, such a statement as that the correlation is $+ 0\ 2027 \pm 0.0815$ is encountered. I gather that there is a direct correlation, but as I do not know what unity is my understanding of the statement is vague.

*** The subject was fully discussed and explained in an article published in this JOURNAL of July 13th, 1907 (p. 95), and it is not easy to state the facts and theories briefly. It may, however, be said that perhaps the most graphic way of apprehending the idea of a coefficient of correlation is to take the case of two equally variable quantities, $x$ and $y$. Suppose we plot on a diagram the mean values of sets of $y$'s associated with particular values of $x$, the mean value of $y$ when $x$ is equal to 1, the mean value of $y$ when $x=2$, and so on. Then, if the points representing the mean values of $y$ lie on a horizontal straight line parallel to the base, clearly $y$ has on the average the same

value whatever $x$ is; there is no correlation between $x$ and $y$. But if $y$ increases as $x$ increases, the line of means slopes upwards to the right; if $y$ decreases as $x$ increases it slopes downwards to the right. The coefficient of correlation under these conditions measures the slope of the line; it is positive in the former and negative in the latter case. When it is equal to unity, either + or −1, the correspondence is absolute: for an increase of one unit in $x$ there will be an increase of one unit in $y$ absolutely—all the $y$'s corresponding to the given $x$ will be equal—if the correlation is + 1; if the correlation is − 1, the decrease of $y$ will also correspond absolutely to the increase of $x$. Of course in many cases the mean $y$'s corresponding to given $x$'s do not lie on a straight line, then the coefficient of correlation ($r$) is not a completely satisfactory measure of the relation. But even in those cases the coefficient gives some idea of the inter-connexion, and must always take an arithmetical value lying between 0 and ± 1.

The fraction appended to the coefficient after the sign ±, is called its "probable error," and measures its reliability, so far as the reliability depends upon the size of the experience—the number of cases examined. Roughly speaking, unless a coefficient is at least two or three times the size of its "probable error" it cannot be regarded as significant.

The other measure of correlation used in the writings mentioned—the correlation ratio, usually represented by the Greek letter $\eta$—is designed to measure correlation when the curve of mean $y$'s for different values of $x$ is not approximately a straight line. It also must take an arithmetical value between 0 and ±1, and is to be thought of in the same way—namely, as an arithmetical measure of the closeness of agreement between the variations of the quantities.

### DILATATION OF CERVIX.

"D. L."—The results of dilatation of the cervix uteri by tents are probably as good as but no better than those of simple dilatation by graduated metal dilators followed by curettage. If tents are used, very careful precautions must be taken with regard to their sterilization. A good method is to leave them for several days in an ethereal solution (1 in 1,000) of mercury perchloride. It may be advantageous to dilate up to 17 or 18 mm. (17 or 18 Hegar) before introducing the tent, and then to introduce two or even three tents side by side, leaving them in position for twenty-four to forty-eight hours. An anaesthetic is sometimes necessary for their removal.

### BACTERIOLOGY OF SEA-WATER BATHS.

DR. J. C. MATTHEWS (Liverpool) writes: With reference to the query by "A. G." (p. 666) I beg to call his attention to the article on the "Bacteria of the Water of Public Swimming Baths," by Professor Ernest E. Glynn and J. C. Matthews, in the *Journal of State Medicine* for 1904 (p. 400). I shall be interested to correspond with him.

### INCOME TAX.

"ALPHA" asks what expenses are allowable, especially in respect of rent and kindred charges.

*** So far as a house used both for private and professional purposes is concerned a reasonable proportion of all general charges—for example, rent and rates, heating and lighting, cleaning, furniture renewals, etc.—can be deducted; the proportion must depend on the facts of each case. One-third is usually right in a medium-sized provincial town and one-half where the cost of living in a convenient situation is higher; two-thirds would apply to special sites or where an abnormal amount of accommodation is used professionally. The other surgery is a professional matter entirely, seeing that the residential portion is occupied rent-free by the dispenser, and the whole rent is allowable, including the cost of keeping the surgery clean. Other expenses mentioned are allowable; matters not referred to are telephone charges, stamps and stationery, and upkeep—but not improvement—of the equipment of instruments, etc.

## LETTERS, NOTES, ETC.

### EPIDEMIC HICCUP.

DR. E. ARCHER-BROWN (Johannesburg) writes: Under this heading in the BRITISH MEDICAL JOURNAL of April 7th (p. 603) appears a summary of the pathology of this strange disease, and mention is made of its frequent association with encephalitis lethargica. Last year, whilst engaged in post-graduate study in Philadelphia, I was much interested in an epidemic of this disease which broke out amongst the students at the Evans Dental Institute. In some cases there was hiccup which lasted for weeks, and several deaths were recorded.

Unfortunately I had occasion to visit the Dental Institute as a patient, and a few days later realized that I had become infected. I awakened one night with violent hiccup; this lasted without intermission for three days and three nights: sleep and the taking of food were impossible, and the violent periodic contractions of the diaphragm at intervals of one to two minutes were extremely painful. I tried morphine but without relief, and then, recalling that for a similar epidemic in South Africa I had used chloretone with success, I took 5-grain capsules of this drug every hour until sleep was induced. On awakening the distressing spasms had ceased.

From my South African experience I should say that hiccup is often associated with epidemic influenza when it is of evil prognosis.

### VENEREAL DISEASE PUBLICITY.

THE General Secretary of the National Council for Combating Venereal Diseases (102, Dean Street, Oxford Street, W.1) writes: In the synopsis of the London County Council's Public Health Committee's Report (Venereal Diseases Section) in your issue of April 14th the statement occurs that "the Council [L.C.C.] now carries out its publicity work through its own official channels, and the arrangement with the National Council for Combating Venereal Diseases to undertake such work on its behalf has been terminated. . . ." We find that some misunderstanding has arisen owing to this statement. The publicity work referred to in the L.C.C. report is the press publicity; the propaganda work undertaken by the National Council on behalf of the L.C.C. still continues, and the arrangement has been confirmed for the year 1923–24.

### DISAPPEARANCE OF RODENT ULCER AFTER ERYSIPELAS.

MR. H. FLECKER, F.R.C.S. (Melbourne, Victoria), writes: With reference to Dr. Grant's case of rodent ulcer (January 13th, 1923, p. 82), where operation was refused and which cleared up after an attack of erysipelas, it would be interesting to know whether $x$-ray or other treatment had been advised. If not, why not? In the *Medical Journal of Australia* for February 24th last is a description by myself of a very extensive involvement of the nasal cartilages which yielded at once to deep $x$-ray treatment. This is in accord with similar experiences by Molesworth and Harrison, separately described in previous numbers of the same journal. It seems probable that all rodent ulcers, even when involving cartilage, periosteum, or bone will readily yield to $x$-ray treatment, provided that rays of sufficient penetration and intensity are employed. This last condition is most important.

### LILLIPUTIAN HALLUCINATIONS.

THE letter from Dr. F. M. Rowland published in the BRITISH MEDICAL JOURNAL of November 18th, 1922 (p. 939), has induced Dr. HENRY P. ELLIOT of Cooktown, Queensland, to send us the following note of his own experience.

"Twelve years or so ago, when in practice at Burketown, N.Q., I went down with a pretty severe attack of malaria, with a temperature round 105° to 106°. I was 'teaching' at the time, taking my meals at the hotel. Friends used to drop in during the night and noticed that I always swept my hands over the sheet when I lay down or changed my position. First I had a nightmare of horses jumping over me, but knew that once they had gone the 'little men' would come, and they invariably did. They were jolly little fellows, an inch or so in height, with tin hats like inverted bowls. (Recollections of Java, Singapore?) They were dressed in vivid colours; blue and yellow were always combined, blue hats and yellow dresses, or vice versa, and red and green in the same way. They ran and played about me, but made no noise, reminding me of ants by their apparently purposeless energy. My one concern was that I might not hurt them, and always brushed them aside most carefully before I moved. The secret slipped out later, and I fell in for a considerable amount of chaff; 'tin hats' evidently then having a meaning which only lately I have heard applied to alcoholics."

### VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 34, 35, 38, and 39 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 36 and 37.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *123*.


## SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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